

股权结构、资产质量与关联担保—来自中国A股上市公司的经验证据*

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摘要

上市公司对外担保一直是我国证券市场上各方关注的一个焦点问题。基于控制权私人收益理论,本文认为关联方担保是控股股东继资金占用、关联交易之后进一步掏空上市公司的行为。通过对上市公司2003和2004两年的经验数据进行实证分析发现,上市公司提供关联担保的概率和数额与第一大股东的持股比例显著负相关,与是否集团所属显著正相关,与资产质量显著负相关。在考虑融资环境约束的情况下,上述关系仍然成立。同时,市场对关联担保公告做出了显著为负的反应。本文首次系统地提供了控股股东以担保的形式掏空上市公司的经验证据。

关键词:关联担保、股权结构、资产质量、掏空

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一、引言

自1999年4月“棱光事件”爆发以来，我国上市公司对外担保问题日益凸显并成为资本市场上各方关注的焦点。在被曝光的猴王股份、PT粤金曼、新疆啤酒花、托普系和德隆系等恶性担保事件中，上市公司担保数额达数亿元乃至数十亿元之巨，令人触目惊心。恶性担保不仅影响了上市公司正常的经营活动，损害了上市公司的利益，还将一些上市公司推向了亏损、退市甚至破产的深渊。最终，银行和中小投资者蒙受了巨大损失。针对这种情况，中国证监会分别于2000年6月和2003年8月相继发布了《关于上市公司为他人提供担保有关问题的通知》（证监公司字[2000]61号）以及《关于规范上市公司与关联方资金往来及上市公司对外担保若干问题的通知》（证监发(2003)56号）两个文件，⁵对上市公司的担保行为做出了直接的限制。然而，根据我们的统计，2003年和2004年上市公司向关联方提供的担保额分别约为584亿元和497亿元，上市公司担保问题依然严峻。于是，一个自然的问题就是：在明知担保可能造成自身损失以及证监会明确限制的情况下，为何不少公司仍然大量提供担保呢？什么样的上市公司提供担保更多呢？本文将尝试通过理论和实证分析对这些问题做出解释。

综观我国上市公司的担保行为，我们发现，其主要形式是为其关联方提供巨额的信用担保。据我们收集的上市公司累计提供担保余额的数据统计，⁶2002年至2004年三年间上市公司为关联方提供担保占所有担保的比例分别高达52.75%、65.38%和71.81%。因此，本文将着重研究上市公司的关联担保问题。在本文中，关联方是指与上市公司存在控制与被控制关系（包括直接和间接控制）的关联方，包括上市公司的控股股东⁷与控股子公司等。由于上市公司直接为控股股东提供担保一直广为诟病，并且中国证监会出台的一些政策法规明文规定禁止直接为控股股东提供担保。因此，上市公司现在较少直接为控股股东提供担保，而会采取一些较为曲折或隐蔽的其他担保方式。这样，受上市

⁵ 2000年6月发布的《关于上市公司为他人提供担保有关问题的通知》（证监公司字[2000]61号）中规定：“上市公司不得以公司资产为本公司的股东、股东的控股子公司、股东的附属企业或者个人债务提供担保”。2003年8月发布的《关于规范上市公司与关联方资金往来及上市公司对外担保若干问题的通知》（证监发(2003)56号）进一步规定：“上市公司不得为控股股东及本公司持股50%以下的其他关联方、任何非法人单位或个人提供担保；上市公司对外担保总额不得超过最近一个会计年度合并会计报表净资产的50%；不得直接或间接为资产负债率超过70%的被担保对象提供债务担保”。

⁶ 现有数据库中的担保数据是根据上市公司担保公告搜集的当年担保发生额，且不够完整详细。因此，本文的累计担保余额数据是通过查阅2002年至2004年所有上市公司的年报手工收集整理得出的。

⁷ 在本文中，我们不区分第一大股东与控股股东，两种说法均系指第一大股东。

公司控制的企业将成为最理想的选择。所以，本文将上市公司的控股股东和上市公司的子公司作为一个整体来分析其担保行为，并将关联方担保限定在此范围之内。

处于转轨经济过程中的我国证券市场的一个基本特征是：我国的绝大多数上市公司被国有控股股东控制，并且其股份不可流通。在现阶段投资者保护较弱的情况下，控股股东有动机和能力掏空（tunnelling）上市公司，实现其控制权私人收益。大量的文献（唐宗明和蒋位，2002；叶康涛，2003；胡旭阳，2004；李增泉等，2004，2005）也表明，我国上市公司的控股股东通过资金占用、关联交易和并购重组等方式掏空上市公司，获取控制权收益。我们知道，当上市公司提供担保而债务人到期无力偿还或不偿还时，上市公司就要承担赔偿责任。这样，当控股股东利用上市公司直接为其或关联方的债务担保时，在债务到期后，由于控股股东控制了上市公司并且债务追偿的成本较高，控股股东往往不偿还贷款而让上市公司承担连带赔偿责任。于是，贷款就被大股东或其关联方无偿占有，而债务的偿还则由上市公司来“买单”，从而控股股东可以掏空上市公司。在控股股东通过利用上市公司为其子公司债务担保的情况下，当子公司获得银行贷款后，控股股东仍然可以通过关联交易、资金占用和并购重组等方式直接或间接地将上市公司子公司的贷款转移到其手中。⁸而在上市公司的子公司贷款到期时，子公司将偿还债务或由上市公司承担连带赔偿责任，控股股东则已通过上述资源转移途径享有了这部分贷款资金，从而也实现了对上市公司的掏空。⁹尽管这种掏空方式较为复杂并且成本相应较高，但在证监会限制以及证券市场各参与方对上市公司担保高度关注的情况下，对控股股东而言，这仍然不失为其进行掏空的一种可行选择。因此，运用控制权私人收益理论，本文认为，上市公司关联担保实际上是其控股股东掏空上市公司的行为。以2003年至2004年两年的我国A股上市公司为样本，本文通过实证研究发现，上市公司控股股东持股比例、公司资产质量与其关联方担保发生额呈显著的负相关关系，受集团控制的上市公司比非集团控制的上市公司提供更多的担保。并且，考虑公司融资环境的约束不影响变量间的上述关系；市场对关联担保公告做出了负的显著反应。这些结果表明，关联担保是控股股东掏空上市公司的一种方式；当公司资产质量较差时，资金占用、关联销售以及并购重组等常见掏空方式的效果可能较差，控股股东倾向于进一步利用上市公司的无形资产——信誉来为关联方提供担保，以达到掏空的目的。

本文的学术意义在于，从理论上解释了我国上市公司提供关联担保的原因

⁸ 下文第三部分将会详细论述此种情况下，控股股东转移资金的过程。

⁹ 当上市公司持有子公司100%或很高比例的股份时，控股股东掏空上市公司的子公司也相当于是掏空了上市公司。

以及什么样的公司倾向于提供关联担保，并且通过实证研究得到了经验数据的支持。此外，本文首次为控股股东以上市公司提供关联担保的方式掏空上市公司提供了经验证据。本文的政策含义是，要想从根本上解决上市公司的担保问题，应从改善公司股权结构、约束大股东行为和加强投资者法律保护着手，而直接限制上市公司的担保行为可能收效甚微。

本文其他部分的安排如下：第二部分回顾国内外的相关文献；第三部分对关联担保行为进行理论分析，并提出研究假说；第四部分是研究设计；第五部分为实证检验的结果及分析；最后对全文进行总结。

二、文献回顾

在西方成熟的商业化条件下，债务担保通常是担保人基于其收益和风险权衡的自身利益最大化的公平交易。西方学者对债务担保的研究主要集中于如何确定其市场价值的分析性研究。Merton（1977）首次证明了债务担保是一个欧式看跌期权，进而发展了一个计算担保价值的模型。Merton模型表明任一普通债券的价值，等于一个无违约风险债券（明示或暗含担保条款）的价值减去一个（基于这个无违约风险债券的）担保合同价值。Fischer, Keber, and Maringer（2001）在Merton模型的基础上提出了更为复杂的模型，他们的模型可以适用于不同期限结构、支付方式及回购等条件下的债务担保，因此模型也更接近现实。其他学者如Jones and Mason（1980）则提出了基于无风险担保人的担保价值模型，该模型结果显示，以公司资产收益的方差来衡量的债券风险越大，其担保价值就越高。Johnson and Stulz（1987）也用模型证明了担保价值是风险证券违约概率的函数。可见，在国外成熟市场上，公司对外担保是一种基于风险和收益权衡的市场化行为。

然而，在我国处于转轨经济的不成熟的证券市场上，上市公司的担保行为发生了扭曲。不少案例表明，集团内部的关联方担保使上市公司沦为了控股股东的“提款机”。主要表现为上市公司无偿为关联方提供大量担保，担保总额占公司净资产的比例很高甚至于超过了净资产，以及上市公司为集团内财务风险过高的关联方担保等。这些行为显然与西方成熟市场上的担保行为大相径庭。于是，上市公司担保问题引起了国内学者的广泛关注。但由于数据较难获取，针对这一问题的大样本实证研究目前还为数较少。冯根福等（2005）描述和分析了中国上市公司担保行为的统计特征，并在此基础上对影响担保行为的因素作了一定的实证分析。他们发现，上市公司的担保行为具有保证担保偏好和连续性特征；通过担保，银行将其对担保贷款风险进行识别和评判的职能转嫁给了上市公司。然而，他们没有区分关联担保和非关联担保，并且主要侧重于描述性统计和相关性检验。刘小年、郑仁满（2005）以2002年数据为基础，分析了上市公司担保与公司业绩和资本结构之间的关系。他们通过logistic回归发

现，业绩差和资产负债率高的上市公司对外担保的可能性较大。然而，他们并没有对担保发生额做连续变量的检验。可见，目前对我国上市公司担保问题的大样本实证研究还比较缺乏，现有的上述两篇实证文献一方面没有构建一个理论框架对上市公司的关联担保行为进行深入分析，另一方面所提供的实证证据也不够充分。

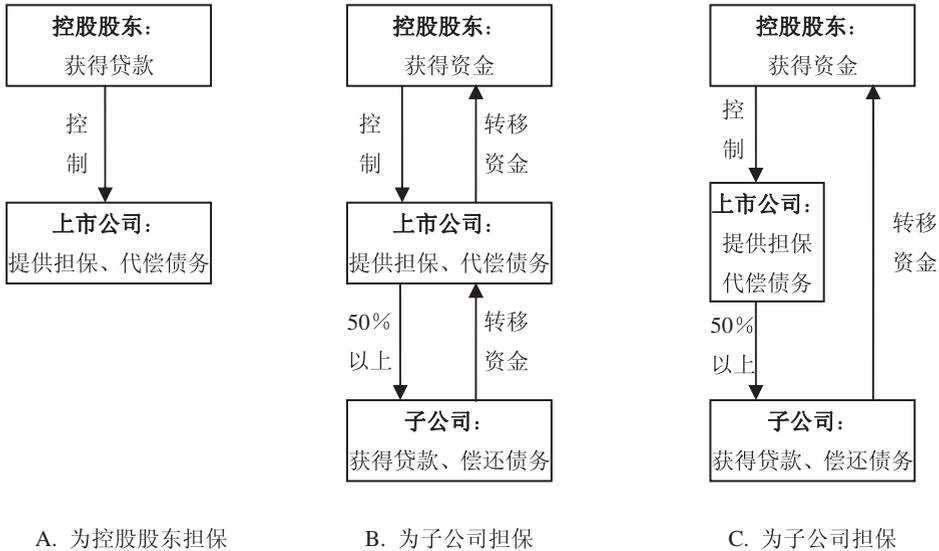
通过上面的文献回顾可以看出，中国的上市公司担保问题不同于西方，基于西方成熟市场上的担保理论并不能合理解释我国上市公司的担保行为。而目前国内关于担保问题的大样本实证研究还比较缺乏。因此，这一问题还需要我们进一步深入研究。结合中国新兴加转型市场的特殊制度背景，本文认为，运用控制权私人收益理论有助于我们较好的解释我国上市公司的担保行为（特别是关联担保）。接下来，我们将对此进行详细的分析。

三、理论分析、制度背景与研究假说

Grossman and Hart于1988年首次提出了控制权收益概念，指出控制性股东会利用其对公司的控制权来消耗公司资源或独占小股东无法分享的利益。Shleifer and Vishny（1997）指出，在缺乏法律对投资者保护的環境中，股权集中在少数控股股东手中会导致控股股东利用公司的资源谋取私利，损害其他股东和利益相关者的利益。从而导致控股股东与中小股东之间严重的代理问题。Johnson *et al.*（2000）进一步将控制性股东把上市公司的资源从小股东手中转移到自己控制的企业中去的行为称之为“掏空”（Tunnelling）。Claessens *et al.*（2002）发现，在亚洲金字塔式股权结构的公司中，当控股股东拥有的控制权超过现金流权时，控股股东“掏空”上市公司，侵害小股东利益的动机就越强。我国证券市场上的一个基本事实是，绝大多数的上市公司存在一个国有的控股股东，并且国有股是不流通的。此外，现阶段我国的投资者法律保护较为薄弱。这就导致了我国上市公司控股股东与中小股东（流通股东）之间的代理问题非常严重。唐宗明和蒋位（2002）、叶康涛（2003）以及胡旭阳（2004）的研究表明，在我国上市公司中，控股股东能获得显著的控制权收益。李增泉等（2004）发现控股股东通过大量占用上市公司资金来“掏空”上市公司。李增泉、余谦和王晓坤（2005）发现上市公司在无保资格之忧时进行的并购活动的动机在于其控股股东掏空资产，损害了公司的价值。因此，私人控制权收益理论为我们理解我国上市公司的许多“特殊”问题提供了有益的视角。那么，我们是否可以运用这一理论来解释我国上市公司的关联担保行为呢？

我们知道，公司提供担保实际上是承担了一项或有负债。当贷款到期，债务人无力偿还或不偿还时，担保方就要对担保的贷款承担赔偿责任。当上市公司向控股股东提供担保时，控股股东就可以获得银行贷款。而贷款到期时，控股股东往往不会偿还贷款而由上市公司来“买单”。于是，控股股东就相当于

图1 控股股东通过上市公司担保进行掏空的示意图



从上市公司转移了一笔等于贷款数额的资金（见图1A）。¹⁰事实上，猴王股份、吉发股份、PT粤金曼、中福实业和九州股份等上市公司就是由于为其控股股东提供了巨额担保，最终承担了连带赔偿责任沦为控股股东的“提款机”。¹¹可见，大股东可以利用上市公司为其担保贷款来掏空上市公司。随着一大批上市公司因为向控股股东提供担保而陷入困境的事件被曝光，以及证监会出台了有关规定明确限制上市公司为控股股东及其关联方提供担保，目前上市公司已很少直接为控股股东提供担保，转而寻求其他一些较为隐蔽和曲折的担保方式。于是，上市公司为子公司提供担保的情况逐渐增多。特别是在2003年9月证监会进一步明确禁止上市公司为控股股东及持股50%以下的关联方提供担保的情况下，上市公司为子公司担保的情况大幅增加。根据我们有的统计，上市公司为子公司担保金额占全部担保金额的比例由2002年的45%增加到2003年的59%、2004年的68%。在这种担保形式下，控股股东仍然可以实现其掏空上市公司的目的，并且更为隐蔽。具体来说，大致可能有以下两种情况（分别如图1B、1C所示）。第一种情况（图1B），上市公司为子公司提供担保，子公司获得贷

¹⁰ 理论上讲，还应扣除被担保方向提供担保方支付的担保费用。但根据我国上市公司提供担保的实际情况，很少有公司在提供担保时直接向被担保方收取费用的情况。特别是在大股东对上市公司有效控制的情况下，这种可能性更小。

¹¹ 如猴王股份为控股股东猴王集团担保贷款的金额高达4.3亿元，而最终猴王股份承担了贷款的连带赔偿责任，因而招致巨额亏损而陷入困境并最终退市。

款后，由于上市公司对子公司处于绝对控股地位，其可以利用内部资源调配的名义将子公司获得的贷款转移到上市公司使用。上海证券报的评论也认为，上市公司“为子公司担保，则可以将其所贷资金拿来自己用”。¹²在此基础上，由于上市公司受到控股股东的控制，控股股东可以进一步将贷款资金从上市公司转移到其手中。李增泉等（2004）以2000年至2003年的上市公司为样本研究发现，具有掏空动机和能力的控股股东占用了上市公司大量的资金。尽管证监会在2003年的“56号文”中禁止控股股东占用上市公司资金并要求控股股东对资金占用进行清欠，从而使得控股股东资金占用的数额有所下降，但据年报统计，2004年上市公司关联方资金占用发生额仍高达1348亿元，¹³仅深市就有74家上市公司被关联方占用资金超过亿元。¹⁴可见，控股股东最终仍然可以将上市公司的子公司获得的贷款转移到其手中。第二种情况（如图1C），由于控股股东控制了上市公司，而上市公司拥有其子公司的绝对控股权，从而使得上市公司的控股股东能对上市公司的子公司形成有效控制。于是通过上市公司为子公司债务提供担保使子公司获得银行贷款后，上市公司的控股股东也可以通过关联交易（Jian and Wong, 2004）、资金占用（李增泉等，2004）、并购重组（李增泉等，2005）等方式直接将上市公司的子公司获得的贷款转移到其手中而不通过上市公司。¹⁵由于上市公司的控股股东和子公司一般都是非上市公司，不需要公开披露有关的财务信息，并且资金转移过程省去了通过上市公司这一环节，因而这种方式更不容易被外界察觉。需要指出的是，在上市公司为子公司担保的情况下（包括图1B和图1C所示的情况），当子公司债务到期时，将最终由子公司偿还贷款或由上市公司承担连带赔偿责任，而控股股东则通过上述资源转移途径占有了这部分贷款，从而掏空了上市公司。¹⁶当然，由上述分析过程可以看出，控股股东通过利用上市公司为子公司担保进行掏空的方式比控股股东直接利用上市公司为其担保进行掏空要复杂得多，相应的成本也会较高。但在证监会限制以及证券市场各参与方对上市公司担保高度关注的情况下，对控股股东而言，这仍然不失为其进行掏空的一种可行选择。事实上，不少案例也反映了这一情况。据报道，原“飞天系”实际控制人邱忠保在控制福建三农、ST龙昌和浙大海纳三家上市公司期间，利用三家上市公司对各地子、孙公司进行违

¹² 上海证券报网络版，2005年04月02日，记者王璐，转引自新浪财经新闻网<http://finance.sina.com.cn>。

¹³ 广州日报，2005年06月15日，转引自大洋网（news.dayoo.com）。

¹⁴ 证券之星编辑整理，2005年11月29日，网址www.stockstar.com。

¹⁵ 尽管这些文献主要是针对控股股东掏空上市公司的行为，但由于控股股东能有效控制上市公司的子公司，这些掏空方式显然也可以在控股股东与上市公司子公司之间实现。

¹⁶ 当上市公司持有子公司100%或非常高比例的股份时，掏空上市公司的子公司也相当于掏空了上市公司。

规贷款担保套取了大量银行存款，并大肆挪用或占用上市公司的资金总额高达16亿元，从而从上市公司或其子公司转移了大量资源。¹⁷综上所述，不论是上市公司为控股股东直接担保还是向子公司担保，上市公司的控股股东最终都可以实现其掏空目的。那么，哪些因素会影响到控股股东的掏空行为呢？下面将对此进行分析，并提出本文的研究假说。

根据经典的代理理论，控股股东的持股比例会直接影响到其掏空上市公司的动机。这是因为，当控股股东的持股比例较低时，其掏空上市公司所导致的上市公司价值减损由其承担的部分（即价值减损乘以其持股比例）较小，所以控股股东有较强的动机掏空上市公司。而当控股股东的持股比例较高时，其掏空上市公司时，自身也要承担较高的成本，因而会削弱其掏空的动机（即“利益协同”效应（Alignment Effect））。因此，从掏空动机的角度看，随着控股股东持股比例的增加，上市公司的关联方担保减少。即，上市公司的关联担保数额与控股股东持股比例负相关。然而，当控股股东的持股比例较低时，其掏空上市公司的能力相对较弱。此时，控股股东的掏空取决于其他大股东的行为，这有两种可能。第一种情况：如果其他大股东能有效制约大股东牟取私利的行为，则第一大股东必须持有一定数额的股份（达到对公司有效控制）才能进行掏空。因而，在较低的第一大股东持股比例上，随着持股比例的增加，其掏空能力增强，上市公司的关联担保增加。而当其持股比例增加到一定程度后，控股股东的掏空动机下降，掏空减少。于是，从总体来看，上市公司的关联担保与其控股股东的持股比例就呈先升后降的“倒U”型关系。第二种情况：如果其他大股东不能有效制衡第一大股东的行为，甚至与其一起合谋侵害小股东的利益（朱红军和汪辉，2004；夏立军和方轶强，2005），¹⁸那么即便第一大股东的持股比例较低，其仍然能掏空上市公司。于是结合掏空动机，从整体上看，上市公司的关联担保也可能与其第一大股东的持股比例呈线性的负相关。¹⁹因此，我们有以下假说：

H1(a)：控股股东的持股比例与上市公司的关联方担保额呈先升后降的“倒U”型关系；

H1(b)：控股股东的持股比例与上市公司的关联方担保额呈线性的负相关；

已有的文献表明，控股股东掏空上市公司的途径有：以较低的价格将资产出售给控股股东或其拥有较高现金收益权的公司（周勤业等，2003），占用上

¹⁷ 参见《法制日报》2008年3月23日报道，转引自新华网（<http://news.xinhuanet.com>）。

¹⁸ 朱红军和汪辉（2004）研究发现，在前几大股东持股比例接近的公司中，公司的掏空情况更严重。夏立军和方轶强（2005）的研究也发现，其他大股东持股比例之和与公司价值呈负相关关系。

¹⁹ 感谢匿名审稿人为我们指出当第一大股东持股比例较低时可能出现的两种情况。

上市公司资金（李增泉等，2004），通过并购重组（李增泉等，2005）以及关联交易（Jian and Wong, 2004）等方式转移优质资产及利润等。如果上市公司的资产质量较好，一方面，控股股东可以通过努力经营获得较高的投资回报；另一方面，即便控股股东欲掏空上市公司，也可以采用上述相对直接的手段来实现目的。因此，控股股东可能不会让上市公司提供关联担保。而如果上市公司的资产质量较差，特别是其盈利能力较低，现金流较少以及未来增长机会较小时，控股股东既不能获得满意的投资回报，同时上述掏空方式的收益也较小。这时，控股股东就可能会让上市公司更多地进行关联担保，以利用上市公司的信誉这一无形资产来掏空上市公司，获取控制权私人收益。可见，上市公司的资产质量会影响其关联方担保的数额。²⁰

H2：上市公司的资产质量越差，其关联方担保额越高；

此外，控股股东的控制方式亦会对关联方担保产生影响。在企业集团内部，可以通过交叉持股、金字塔结构等方式方便地实现控制权和现金收益权的分离，降低了控制权私人收益对控制权共享收益的抵消作用，从而增强了控股股东的掏空动机（Wolfenzon, 1999）。更为重要的是，集团内部一些企业之间的关联关系比较复杂和隐蔽，外部投资者往往难以察觉。这种复杂和隐蔽的关联关系可以比较容易地掩盖关联方之间交易的实质。特别是在证监会对上市公司提供担保做出限制的情况下，通过集团内这种复杂的关联关系提供担保往往可以达到规避监管的目的。因此，受企业集团控制的上市公司可能提供更多的担保。

H3：集团控制的上市公司比非集团控制的上市公司提供更多的关联担保。

四、研究设计

（一）样本选择

本文选择2003至2004两年的所有A股上市公司作为研究样本。在剔除金融行业公司及缺失值之后，样本最终包括1896个观测值，其中2003年973个，2004年923个。本文研究所采用的担保数据来自于上交所、深交所网站公开的A股年报

²⁰ 如果债权人（银行）能积极履行其贷款风险识别和防范功能，那么当上市公司的资产质量较差时，银行应该拒绝其提供担保。然而，正如冯根福等（2005）指出的那样，由于上市公司的壳资源是稀缺资源，银行视其为黄金客户，往往忽视风险识别和防范。此外，由于银行的国有性质和信贷激励机制的扭曲，银行往往存在重贷款规模而轻效益的行为。这也削弱了银行对上市公司担保资格的审查。刘小年和郑仁满（2005）也发现公司业绩越差，提供担保的概率越大。因此，我们没有考虑银行对上市公司提供担保的影响。感谢匿名审稿人指出这一问题。

数据，系由手工收集整理所得。第一大股东的控制类型及考虑股东之间关联关系后的持股比例数据也是根据年报收集整理而得。其他公司治理和财务数据则来自于香港理工大学金融研究中心与深圳国泰安信息技术有限公司联合开发的CSMAR数据库。

（二）模型与变量

本文采用以下模型来检验上述研究假说：

$$\begin{aligned} \Delta RP G_t = & \beta_0 + \beta_1 * LSHR_CEN_t + \beta_2 * LSHR_CENSQ_t + \beta_3 * GROUP_t + \beta_4 * ROA_{t-1} + \\ & \beta_5 * CFPS_{t-1} + \beta_6 * TOBINQ_{t-1} + \beta_7 * OSHR2-5_t + \beta_8 * RPG_BAL_{t-1} + \\ & \beta_9 * LEV_{t-1} + \beta_{10} * SIZE_{t-1} + \beta_{11} * YR + \sum_{i=1}^{20} \beta_{11+i} * IND_i + \delta \end{aligned} \quad (1)$$

其中，下标 t 表示当年， $t-1$ 表示上一年。各变量的定义说明如下：

1·被解释变量

$\Delta RP G$ 为上市公司提供关联担保的当年发生额，本文用手工收集的累计关联方担保余额的年末值与年初值之差除以年末总资产来替代衡量。这里需要说明的是，尽管中国证监会对上市公司的担保行为做出了许多规定，但不少上市公司对外担保的信息披露并不规范。经过与公司年报及担保公告对比，我们发现现有数据库中的担保发生额数据不够完整详细，或是记录有遗漏，或是不能满足本文对关联担保界定的需要。因此，本文手工收集了公司的关联方担保数据。本文没有直接采用当年的累计关联担保余额，而是用发生额作为模型（1）中的因变量是因为：我们在推导假说H2时认为，控股股东在选择提供担保对象时，会选择那些资产质量较差的公司来进行掏空。当上市公司的资产质量变差后会导致其容易被控股股东利用来为关联方提供担保，即上市公司资产质量差与提供担保之间有一定的时间先后顺序。²¹如果使用累计关联方担保余额作为因变量，其反映的是历年累积的、担保合同尚未结束的担保额。这样我们就无法确定其中各项担保的发生时间，从而较难说明公司的资产质量差导致了提供关联担保多这一问题。所以，我们在模型（1）中采用关联方担保发生额作为因变量，同时也在稳健性测试中使用当年末的累计关联方担保余额作为因变量进行了检验。²²

²¹ 这也是我们在回归模型（1）中，各资产质量变量使用上一年数值的原因。

²² 该稳健性检验的结果见表6。

2·考察变量

$LSHR_CEN$ 和 $LSHR_CENSQ$ 分别是经过中心化处理后的上市公司第一大股东持股比例及其平方值。由于在模型中直接纳入第一大股东持股比例及其平方项会引起多重共线性问题,参照夏立军和方轶强(2005)的方法,我们对第一大股东的持股比例进行了中心化处理。即 $LSHR_CEN$ 等于第一大股东的持股比例减去样本的均值。根据H1(a),我们预期 $\beta_1 < 0$ 且 $\beta_2 < 0$ 。根据H1(b),我们预期 $\beta_1 < 0$,而 β_2 不显著。

$GROUP$ 为虚拟变量,当公司属于集团控制时取值为1,否则为0。借鉴李增泉等(2004)的分类方法,根据第一大股东的控制方式,本文将样本公司分为企业集团控制和非集团控制。其中,非集团控制是指国有资产管理局、国有资产经营公司、政府部门以及学校或科研机构等不从事具体经营活动的组织或单位控制的上市公司。其余则为受企业集团所控制的公司。根据H3,预期该变量的系数 $\beta_3 > 0$ 。

ROA 、 $CFPS$ 和 $TOBINQ$ 是三个衡量公司资产质量的变量。其中, ROA 为总资产报酬率,等于利润总额除以年末总资产。 $CFPS$ 是每股现金净流量,等于当年现金净流量除以总股本。 $TOBINQ$ 是企业市场价值与账面价值之比,用流通股市值与非流通股和负债的账面价值之和除以年末总资产的账面价值表示。若公司资产质量好,最终必然表现在公司拥有很强的获利能力,较高的现金流量以及有较高的未来增长机会。所以,本文用 ROA 、 $CFPS$ 和 $TOBINQ$ 这三个变量分别从公司的当前盈利能力、现金流量水平及未来的增长机会三个方面大致衡量公司的资产质量。根据H2,预期这些变量系数的符号为负。为了检验上市公司的资产质量差导致了提供的关联担保多,本文选择了这些变量上一年的数值。

3·控制变量

$OSHR2-5$ 表示公司第2到第5大股东的持股比例之和,用以控制其他大股东对关联担保的影响。由于其他大股东既可能制约第一大股东的掏空行为,也可能和第一大股东合谋掏空公司,因此我们对 β_7 的符号不做预期。 RPG_BAL 是上年度的累计关联方担保余额(以总资产调整)。根据冯根福等(2005)的研究结果,上市公司的担保有连续性,即以前年度提供担保较多的企业,当年提供担保数额多的可能性较大;但由于证监会对上市公司累计担保余额占净资产的比重有限制,以前年度累计担保额较高的企业可能受此限制而减少担保的数额,因此本文不对变量的 RPG_BAL 的符号做预期。 LEV 是公司的资产负债率,等于年末负债总额占总资产的比例。冯根福等(2005)发现,公司的财务风险(用资产负债率衡量)与提供担保额正相关。刘小年和郑仁满(2005)的研究认为,资产负债率越高,公司资产中股东的权益越少,第一大股东利用担保掏空的收益越大(担保的损失将大部分由债权人承担)。因而本文预期 $\beta_9 > 0$ 。

*SIZE*为公司的规模,用公司总资产的自然对数表示。规模大的企业信息较为透明,担保能力较强,因而预期该变量的符号为正。*YR*是年度虚拟变量,用以控制年度宏观经济因素差异的影响。当观测值是2003年时,*YR*取值为1,否则为0。*IND*是行业虚拟变量,用以控制行业因素的影响。本文按照证监会颁布的分类标准将样本公司的行业类型分为22类(制造业取两位代码分类,其他行业取一位代码分类),并以农业类上市公司为参照系,设置20个行业虚拟变量(剔除了金融业)。

表1给出了本文主要研究变量的描述性统计结果。为了避免异常值的影响,

表1 变量描述性统计

变量	样本数	均值	标准差	最小值	中位数	最大值
ΔRPG_t	1896	0.0181	0.0392	0.0000	0.0000	0.2050
$LSHR_t$	1896	0.4358	0.1712	0.0614	0.4266	0.8500
$LSHR_CEN_t$	1896	0.0000	0.1712	-0.3744	-0.0092	0.4142
$LSHR_CENSQ_t$	1896	0.0293	0.0288	0.0000	0.0213	0.1716
$OSHR2-5_t$	1896	0.1588	0.1312	0.0020	0.1302	0.5882
$GROUP_t$	1896	0.8718	0.3344	0.0000	1.0000	1.0000
ROA_{t-1}	1896	0.0319	0.0720	-0.3603	0.0390	0.1865
$CFPS_{t-1}$	1896	0.1040	0.6874	-1.6217	0.0155	3.1122
$TOBINQ_{t-1}$	1896	1.3909	0.3933	0.9772	1.2761	3.2148
RPG_BAL_{t-1}	1896	0.0109	0.0308	0.0000	0.0000	0.1878
LEV_{t-1}	1896	0.4536	0.1896	0.0743	0.4433	1.1070
$SIZE_{t-1}$	1896	21.0805	0.8893	19.0756	21.0204	23.5964

ΔRPG : 当年提供关联担保数额除以年末总资产;

$LSHR$: 第一大股东的持股比例;

$LSHR_CEN$: 经中心化处理的第一大股东持股比例,等于第一大股东持股比例减去样本均值;

$LSHR_CENSQ$: $LSHR_CEN$ 的平方项;

$OSHR2-5$: 第2到第5大股东的持股比例之和;

$GROUP$: 虚拟变量,当公司属于集团控制时取值为1,否则为0;

ROA : 总资产报酬率,等于公司利润总额除以年末总资产;

$CFPS$: 每股现金流量,等于当年现金流量除以年末总股本;

$TOBINQ$: 企业市场价值与账面价值的比值,等于流通股市值与非流通股和负债的账面价值之和除以年末总资产的账面价值;

RPG_BAL : 累计提供关联担保余额除以总资产;

LEV : 资产负债率,等于负债总额除以总资产

$SIZE$: 公司的规模,等于总资产的自然对数

下标 t 表示当年, $t-1$ 表示上年。

我们对关联担保额和财务状况的变量在1%和99%分位数之外的观测值进行了Winsorizing处理。根据表1，关联担保的年发生额平均占公司总资产的1.81%，最高的达到了总资产的20%。第2至第5大股东持股比例之和的均值为15.88%，仅为第一大股东持股比例均值的三分之一左右。平均上看，其他大股东很难对第一大股东形成制约。

五、结果及分析

(一) 单因素分析

首先，我们按第一大股东的持股比例将样本分为7组，每组的观测值个数和关联担保发生额均值见表2。从中可以看到，随着控股股东持股比例的增加，上市公司关联担保发生额明显减少。第一大股东的持股比例与关联担保发生额呈线性的负相关关系。图2直观地反映了这一点。这与H1(b)的预期相符。

表2 第一大股东持股比例与关联担保发生额的关系

LSHR(%)区间	样本数	ΔRPG 均值
(0, 20]	130	0.0360
(20, 30]	472	0.0241
(30, 40]	273	0.0177
(40, 50]	278	0.0153
(50, 60]	350	0.0134
(60, 70]	277	0.0126
(70, 100]	116	0.0082

LSHR：第一大股东的持股比例；

ΔRPG ：当年提供关联担保数额除以年末总资产。

图2 第一大股东持股比例与提供关联担保数额的关系

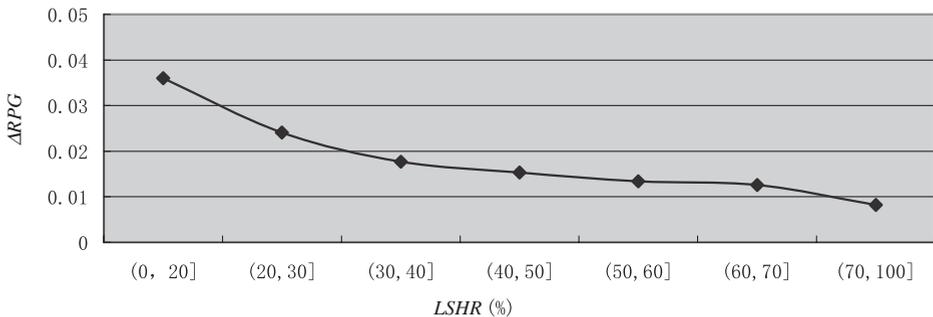


表3 单变量分析

	高于中位数组 (N=948)	低于中位数组 (N=948)	差异	T值
Panel A：按ROA分组				
ΔRPG 均值	0.0151	0.0211	-0.0060***	3.35
Panel B：按TOBINQ分组				
ΔRPG 均值	0.0155	0.0207	-0.0052***	2.91
Panel C：按CFPS分组				
ΔRPG 均值	0.0179	0.0182	-0.0003	0.16
Panel D：按GROUP分组				
	GROUP=1 (N=1653)	GROUP=0 (N=243)	差异	T值
ΔRPG 均值	0.0219	0.0192	0.0027	0.60

ΔRPG ：当年提供关联担保数额除以年末总资产；

GROUP：虚拟变量，当公司属于集团控制时取值为1，否则为0；

ROA：总资产报酬率，等于公司利润总额除以年末总资产；

CFPS：每股现金流量，等于当年现金流量除以年末总股本；

TOBINQ：企业市场价值与账面价值的比值，等于流通股市值与非流通股和负债的账面价值之和除以年末总资产的账面价值。

*、**、*** 分别表示双尾t检验在10%、5%和1%上显著。

其次，我们根据衡量资产质量三个变量的中位数以及是否受集团控制分别将样本分为两组，对两组子样本的关联担保发生额均值进行单变量检验，分析结果见表3。其中，ROA以及TOBINQ低于中位数一组的关联担保发生额均值分别高于各自高于中位数一组的关联担保发生额均值，并且两组的均值差异在1%的水平上显著（Panel A和Panel B）。这与我们的预期相一致。但是，按CFPS高低分组以及是否集团所属两组的关联担保额均值没有通过显著性检验（Panel C和Panel D）。

最后，我们给出了本文重要变量的相关系数矩阵，结果见表4。从Pearson相关系数看，变量LSHR_CEN、ROA、CFPS、RPG_BAL、LEV和SIZE与关联担保发生额的关系符合预期，并且显著。从Spearman相关系数来看，变量LSHR_CEN、GROUP、ROA、TOBINQ、RPG_BAL、LEV和SIZE与关联担保发生额的关系符合预期，并且显著。从表4可看出，模型（1）中自变量间不存在严重的共线性。

表4 各变量之间的相关系数矩阵

	ΔRP_G	$LSHR_CEN_t$	$LSHR_CENSQ_t$	$OSHR2-5_t$	$GROUP_t$	ROA_{t-1}	$CFPS_{t-1}$	$TOBINQ_{t-1}$	RPG_BAL_{t-1}	LEV_{t-1}	$SIZE_{t-1}$
ΔRP_G											
$LSHR_CEN_t$	-0.1831***										
$LSHR_CENSQ_t$	-0.1610***	0.0298									
$OSHR2-5_t$	0.0458**	0.0262									
$GROUP_t$	0.0675***	-0.1317***									
ROA_{t-1}	0.0041	0.0397*	0.0511**								
$CFPS_{t-1}$	-0.1428***	0.0357	-0.0043								
$TOBINQ_{t-1}$	-0.0511**	0.0054	-0.0269	0.0032							
RPG_BAL_{t-1}	-0.0182	-0.1762***	-0.0047	0.0823***	0.0135						
LEV_{t-1}	0.2969***	-0.1673***	0.0410*	0.0388*	-0.0450*	-0.1934***	-0.0370	-0.0034	-0.1038***	0.2118***	0.1116***
$SIZE_{t-1}$	0.1596***	-0.1581***	0.0253	0.0627***	-0.0458**	-0.2803***	-0.0022	0.0468**	0.2262***	0.1434***	0.0625***
	0.0563**	0.2301***	0.1374***	-0.1866***	0.0483**	0.1658***	0.0012	-0.5459***	0.0310	0.0625***	

ΔRP_G ：当年提供关联担保数额除以年末总资产； $LSHR_CEN_t$ ：经中心化处理的第一大股东持股比例，等于第一大股东持股比例减去样本均值； $LSHR_CENSQ_t$ ： $LSHR_CEN_t$ 的平方项； $OSHR2-5_t$ ：第2到第5大股东的持股比例之和； $GROUP_t$ ：虚拟变量，当公司属于集团控制时取值为1，否则为0； ROA_t ：总资产报酬率，等于公司利润总额除以年末总资产； $CFPS_t$ ：每股现金流量，等于当年现金流量除以年末总股本； $TOBINQ_t$ ：企业市值与非流通股市值与流通股市值之比，等于流通股市值与总资产之比； RPG_BAL_{t-1} ：累计提供关联担保余额除以总资产； LEV_t ：资产负债率，等于负债总额除以总资产； $SIZE_t$ ：公司的规模，等于总资产的自然对数；

下标 t 表示当年， $t-1$ 表示上年；

对角线左下方为Pearson相关系数，对角线右上方为Spearman相关系数；

*, **, *** 分别表示双尾检验在10%、5%和1%上显著。

(二) 多变量分析

表5中的第(1)列是根据模型(1)进行多元回归的结果。可以看出,变量 *LSHR_CEN* 的系数为负,且在1%的水平上显著。而其平方项 *LSHR_CENSQ* 的系数不显著。这说明第一大股东的持股比例与公司提供关联担保之间存在线性的负相关关系,第一大股东持股比例越低,上市公司提供关联担保越多。该结果符合H1(b)的预期,而不支持H1(a)。这至少表明,即使在较低的第一大股东持股比例上,其他大股东也没有起到制约大股东掏空上市公司的作用,使得第一大股东能够让上市公司提供较多关联方担保。²³变量 *GROUP* 在10%的显著水平上显著为正,说明集团所属的上市公司提供关联担保较多,支持本文的假说H3。

就衡量公司质量的变量而言, *ROA* 系数的符号为负,并且在1%的水平上显著。这说明上市公司的盈利能力越差,提供关联担保的数额越大。*TOBINQ* 的系数也在10%的水平上显著为负,即公司未来的增长机会越小,提供关联担保越多。*CFPS* 的符号为负,说明每股现金流量较低的上市公司担保发生额较大,但该变量的系数没有通过显著性检验。这些结果基本说明,公司获利能力越差,

表5 多变量回归结果

变量	预期符号	OLS回归				Logistic回归
		(1)	(2)	(3)	(4)	(5)
截距	?	-0.0401 (0.2363)	-0.0318 (0.4262)	-0.0409 (0.2263)	0.0093 (0.8893)	-4.5827** (0.0148)
<i>LSHR_CEN</i>	-	-0.0327*** (0.0002)	-0.0315*** (0.0009)	-0.0293*** (0.0010)	-0.0261* (0.0882)	-1.9087*** (<.0001)
<i>LSHR_CENSQ</i>	-	0.0424 (0.2663)	0.0327 (0.4210)	0.0173 (0.6615)	0.0704 (0.3103)	0.4950 (0.8018)
<i>GROUP</i>	+	0.0041* (0.0910)	0.0037* (0.0729)	0.0043* (0.0935)	0.0114** (0.0433)	0.1824* (0.0781)
<i>ROA</i>	-	-0.0568*** (<.0001)	-0.0749*** (<.0001)	-0.0562*** (<.0001)	-0.0235*** (0.0030)	-0.6000 (0.1567)
<i>TOBINQ</i>	-	-0.0061* (0.0559)	-0.0062* (0.0664)	-0.0057* (0.0694)	0.0075 (0.2677)	-0.6592*** (0.0004)
<i>CFPS</i>	-	-0.0004 (0.7564)	0.0018 (0.4889)	-0.0005 (0.7358)	-0.0020 (0.5674)	-0.2118*** (0.0133)

²³ 当然,这有可能是第一大股东在持股比例较低的情况下,不能完全控制上市公司的担保决策,而和其他大股东一起合谋共同掏空或利用公司资源为其所在企业融资提供担保。感谢匿名审稿人为我们指出这一点。

表5 续

变量	预期符号	OLS回归				Logistic回归
		(1)	(2)	(3)	(4)	(5)
<i>OSHR2-5</i>	?	-0.0007 (0.9525)	0.0019 (0.8769)	0.0011 (0.9262)	0.0099 (0.6177)	-0.8895 (0.1206)
<i>RPG_BAL</i>	?	0.1658*** ($<.0001$)	0.2121*** ($<.0001$)	0.1668*** ($<.0001$)	0.0236 (0.6128)	48.4215*** ($<.0001$)
<i>LEV</i>	+	0.0134*** (0.0010)	0.0000 (0.9938)	0.0135*** (0.0009)	0.0118 (0.3476)	1.3945*** ($<.0001$)
<i>SIZE</i>	+	0.0033** (0.0285)	0.0032* (0.0694)	0.0033** (0.0259)	0.0007 (0.8043)	0.2219*** (0.0072)
年度		控制	控制	控制	控制	控制
行业		控制	控制	控制	控制	控制
N		1896	1765	1896	683	1896
F/-2 LOG		16.55***	13.78***	16.40***	2.40***	1977.14***
Likelihood Ratio						
Adj-R ² /Max-Rescaled R ² (%)		20.28	18.34	20.12	5.97	31.84

表中(1)-(4)列中的因变量为 ΔRPG ，等于当年提供的关联担保数额除以年末总资产；第(5)列中的因变量为虚拟变量 $\Delta RPGD$ ，公司当年提供担保数额大于0则取值为1，否则取值为0；*LSHR_CEN*：经中心化处理的第一大股东持股比例，等于第一大股东持股比例减去样本均值；*LSHR_CENSQ*：*LSHR_CEN*的平方项；*OSHR2-5*：第2到第5大股东的持股比例之和；*GROUP*：虚拟变量，当公司属于集团控制时取值为1，否则为0；*ROA*：总资产报酬率，等于公司利润总额除以年末总资产；*CFPS*：每股现金流量，等于当年现金流量除以年末总股本；*TOBINQ*：企业市场价值与账面价值的比值，等于流通股市值与非流通股和负债的账面价值之和除以年末总资产的账面价值；*RPG_BAL*₁：累计提供关联担保余额除以总资产；*LEV*：资产负债率，等于负债总额除以总资产；*SIZE*：公司的规模，等于总资产的自然对数；年度虚拟变量：当观测值是2003年时取1，否则为0；行业虚拟变量：根据证监会行业分类标准，设置20个虚拟变量。

在第(1)列的回归中，变量*ROA*、*CFPS*、*TOBINQ*、*RPG_BAL*、*LEV*和*SIZE*采用上一年的数据；第(2)列的回归中，变量*ROA*、*CFPS*、*TOBINQ*、*LEV*和*SIZE*采用前两年数据的平均值；第(3)列是考虑了前十大股东之间关联关系后的回归结果；而第(4)列则是剔除当年没有提供关联担保的观测值后的回归结果。

(1)-(4)列括号中的数字为t检验的p值，第(5)列括号中的数字则为Wald Chi-Square检验的p值；*、**、*** 分别表示双尾检验的显著性水平为10%、5%和1%。

未来增长机会越小以及现金流量越低，提供的关联方担保越多，越容易成为大股东的掏空对象，与假说H2的预期相符。

控制变量 $OSHR2-5$ 的系数很小，并且基本不具有统计显著性，这在一定程度上说明，在控制其他因素的情况下，其他大股东对第一大股东利用上市公司进行关联担保的行为没有显著影响。²⁴ RPG_BAL 的系数显著为正，即公司以前年度担保越多，当年担保发生额越多。这与冯根福等（2005）发现的上市公司担保具有连续性特征一致，也表明了证监会对上市公司累计担保总额的限制性规定并没有得到有效执行。此外， LEV 和 $SIZE$ 的系数均为正，并且都显著。说明公司上年负债率越高以及规模越大，公司当年担保发生额越多。这些结果与冯根福等（2005）以及刘小年和郑仁满（2005）的研究发现一致。

（三）稳健性测试

首先，考虑到同一变量各年间的波动性，仅用上一年公司资产质量的数值可能不能完全反映公司的真实状况，我们分别用 ROA 、 $CFPS$ 和 $TOBINQ$ 变量前两年的平均值替代第（1）列中的有关变量进行回归分析（相应的， LEV 和 $SIZE$ 也用前两年均值代替）。表5中的第（2）列列示了该回归的结果。可以看出，除了控制变量 LEV 的系数不显著外，其余变量的回归结果与第（1）列基本一致。

其次，上市公司第一大股东与其他前十大股东之间可能存在关联关系，仅用第一大股东的直接持股比例就会低估控股股东的实际控制权。因此，我们进一步根据年报中披露的前十大股东之间的关系，对存在关联关系的股东的持股比例进行了合并，以此作为各股东的持股比例。使用调整后的持股比例数据对模型（1）回归的结果与先前并没有实质性差异（见表5中的第（3）列）。

再次，我们还将当年没有提供关联方担保的观测值剔除后进行了回归，结果见表5中第（4）列。其中，变量 $LSHR_CEN$ 和 $GROUP$ 的系数显著不为0，且符号符合预期。在衡量资产质量的三个变量中， ROA 的系数显著为负，其余则不显著。总体上看，基本上支持本文的假说，但模型的拟合优度和解释力均有所下降。这可能是观测值减少造成的。

此外，我们设置了虚拟变量 $\Delta RPGD$ ，当关联担保发生额大于0时取值为1，否则为0。用该变量替换模型（1）中的因变量 ΔRPG ，并进行Logistic回归，以考察股权结构和资产质量对提供关联担保概率的影响。回归的结果见表5第（5）列。可以看出，第一大股东持股比例越低、公司增长机会以及每股现金流量越

²⁴ 这与表4中 $OSHR2-5$ 与 ΔRPG 正相关不一致，这有可能是两者之间的正相关关系包含了其他因素的作用，在回归中控制其他变量的情况下，此种关系消失；也有可能是两者之间确实存在正相关关系，而回归模型中存在多重共线性，把这种关系淹没了。但本文主要关注控股股东的行为，这里不对此做深入的讨论。

少，其提供关联担保的概率越高。受集团控制的上市公司，提供担保的概率比非集团控制的公司高。这进一步验证了本文的假说H1(b)、H2和H3。

最后，由于模型（1）中股权结构、规模、资本结构等自变量在时序上相对稳定，相应地以累计担保余额作为因变量，将担保余额与决定因素进行回归，可以体现出均衡的结果。因此，我们用累计关联方担保余额作为因变量对模型（1）进行了稳健性检验。²⁵检验结果见表6。第（1）列是没有控制上年关联担保余额的回归结果，与表5相比，衡量资产质量的变量ROA和TOBINQ仍然为负，但不显著，而变量CFPS的系数显著为负，即现金流缺乏的公司关联担保较多，这表明自身现金缺乏的公司由于不能被控股股东直接进行资金占用，于是更容易被控股股东利用来进行关联担保。其余变量的结果与表5没有实质性差

表6 用累计担保余额作为因变量的回归结果

	(1)		(2)	
	系数	P值	系数	P值
截距	-0.0644	0.1158	-0.0346	0.2602
<i>LSHR_CEN</i>	-0.0645***	<.0001	-0.0290***	0.0003
<i>LSHR_CENSQ</i>	0.1117	0.1333	0.0596	0.1757
<i>GROUP</i>	0.0019*	0.0625	0.0019*	0.0521
<i>ROA</i>	-0.0119	0.4975	-0.0123	0.3488
<i>TOBINQ</i>	-0.0075	0.1345	-0.0085**	0.0217
<i>CFPS</i>	-0.0066***	0.0075	-0.0038**	0.0456
<i>OSHR2-5</i>	-0.0211	0.1138	0.0009	0.9266
<i>LEV</i>	0.0661***	<.0001	0.0256***	<.0001
<i>SIZE</i>	0.0048***	0.0072	0.0029**	0.0291
<i>LAG_RPG</i>			1.1227***	<.0001
年度	控制		控制	
行业	控制		控制	
N	1895		1760	
F值	11.54***		76.66***	
Adj-R ² (%)	14.31		57.14	

表中的因变量为RPG，等于当年末累计关联方担保余额除以总资产；LAG_RPG为变量RPG的上一年数值；

其余变量的定义同表5；

括号中的数字为t检验的p值，*、**、*** 分别表示双尾检验的显著性水平为10%、5%和1%。

²⁵ 感谢执行编辑吴东辉博士对此问题的建议。

异。在第(2)列中,我们控制了上一年的累计关联担保余额 LAG_RPG ,这样做的好处在于既可以控制影响关联担保余额的遗漏变量,也接近于以担保发生额作为因变量回归而不必强加 LAG_RPG 的系数为1这一假设。在控制上年累计关联担保余额后,变量 $TOBINQ$ 的系数变得显著(5%水平上),并且符号符合预期。其他变量系数有所减小,但显著性没有发生变化。而整个模型的解释力(R^2)大幅上升了。总之,以关联担保余额作为因变量进行回归并没有改变本文的基本结论。

(四) 进一步分析

1. 考虑融资环境约束的影响

企业的融资行为受其所处的融资环境约束。如果企业所处的市场不发达,金融发展落后,则其有融资需求时,较难从外部市场获得资金。这时,通过利用上市公司为关联方提供担保向外部融资可能是一种成本较低的方式。因此,金融市场不发达地区的企业可能有较多的关联方担保。根据中国经济改革研究基金会国民经济研究所发布的中国市场化进程研究报告——《中国市场化指数》(樊纲和王小鲁,2001,2003,2004)表明,由于资源禀赋、地理位置以及国家政策的不同,各地区的市场化程度存在较大的差异。夏立军和方轶强(2005)以及孙铮、刘凤委和李增泉(2005)的研究表明,地区的市场化进程对上市公司所有权结构与公司价值的关系以及公司的债务期限结构具有重要影响。所以,为了避免遗漏变量,我们在模型(1)中进一步控制融资环境对关联担保的影响。

本文分别采用《中国市场化指数》中提供的金融业市场化指数和市场化总指数(分别用 FAC 和 $MARKET$ 表示)作为公司融资环境的替代变量。²⁶ FAC 和 $MARKET$ 的值越低,表示当地的金融市场越不发达,市场化程度越低。因此,我们预期,它们与关联担保发生额负相关。

表7给出了在模型(1)中分别加入变量 FAC 和 $MARKET$ 的回归结果。从表7可以看出,在考虑融资环境的影响之后,模型(1)中原有变量系数的符号和显著性均与表5的回归结果基本一致。而 FAC 和 $MARKET$ 的符号与预期的相反,但不显著。这个结果表明,金融市场发展并没有对企业的关联担保产生显著影响;在控制了融资环境变量的影响之后,本文的结论没有发生变化。

²⁶ 由于数据披露的限制,要确定上市公司控股股东及所有关联方的所在地非常困难。出于简化,这里假定上市公司与其控股股东及关联方位于同一省份(或自治区、直辖市)。

表7 考虑融资环境约束的回归结果

变量	预期符号	(1)	(2)
截距	?	-0.0512 (0.1431)	-0.0526 (0.1325)
<i>LSHR_CEN</i>	-	-0.0331*** (0.0002)	-0.0328*** (0.0003)
<i>LSHR_CENSQ</i>	-	0.0337 (0.3858)	0.0332 (0.3938)
<i>OSHR2-5</i>	?	-0.0006 (0.9569)	-0.0008 (0.9417)
<i>GROUP</i>	+	0.0039** (0.0512)	0.0039** (0.0496)
<i>ROA</i>	-	-0.0604*** ($<.0001$)	-0.0603*** ($<.0001$)
<i>TOBINQ</i>	-	-0.0057* (0.0774)	-0.0057* (0.0784)
<i>CFPS</i>	-	-0.0009 (0.5903)	-0.0009 (0.5873)
<i>RPG_BAL</i>	?	0.1578*** ($<.0001$)	0.1583*** ($<.0001$)
<i>LEV</i>	+	0.0132*** (0.0015)	0.0132*** (0.0015)
<i>SIZE</i>	+	0.0036** (0.0209)	0.0032* (0.0694)
<i>FAC</i>	-	0.0008 (0.1477)	
<i>MARKET</i>	-		0.0007 (0.3124)
年度		控制	控制
行业		控制	控制
N		1836	1836
F		15.77***	15.73***
Adj-R ² (%)		20.48	20.44

因变量 ΔRPG 为当年提供的关联担保数额除以年末总资产；

*FAC*和*MARKET*分别是各地区金融市场化指数和市场化总指数；

其余变量定义同表5；

第(1)和(2)列中的变量*ROA*、*CFPS*、*TOBINQ*、*RPG_BAL*、*LEV*和*SIZE*均采用上一年的数据；

括号中的数字为t检验的p值，*、**、*** 分别表示双尾检验的显著性水平为10%、5%和1%。

2· 关联担保的市场反应

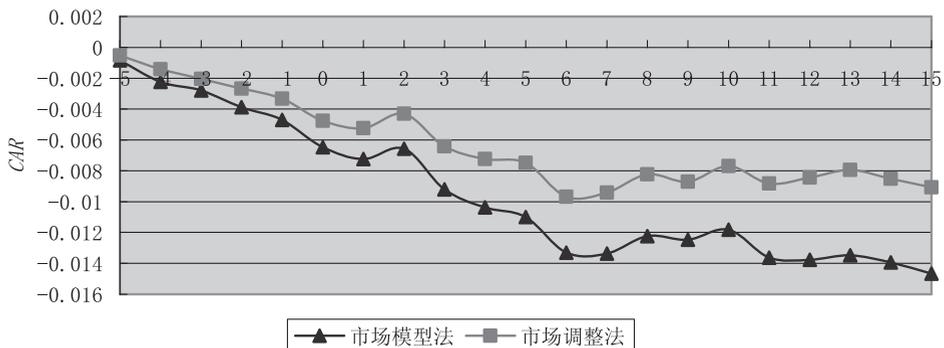
根据有效市场假说，当上市公司发布关联担保的公告后，投资者立即会对其后果做出理性预期并通过交易把这种预期反应在股票价格中。那么，投资者是怎样看待提供关联担保对公司价值的影响呢？

本文利用聚源数据库提供的上市公司担保公告数据，从中挑选出符合本文定义的关联担保公告880个来检验其市场反应。²⁷我们分别采用市场模型法和市场调整法计算了样本公司公告关联担保事件前后的累计非正常报酬率（用CAR表示）。市场模型的估计期为（-95, -6）天，研究的窗口为（-5, 15）天。从表8和图3的结果可以看出，研究窗口的CAR值始终为负，并且均显著（第-5天除外）。从公告前5天开始至公告后7天，CAR值持续下降，达到-1.3%；之后，CAR值小幅波动，到公告后第15天，下降至-1.47%。采用市场调整法的结果非常相似，这里不再赘述。这说明投资者认为上市公司提供关联担保并没有获得相应的补偿，对公司造成了不利影响，损害了公司价值。结合上文的分析和实证发现的结果，我们认为，这印证了关联担保是大股东的掏空行为的观点。

六、结论与研究局限

上市公司对外担保问题一直是证券市场上各方关注的焦点之一。然而，对此问题的实证研究并不多见，已有的文献也没有从理论上对其成因等进行深入探讨。运用控制权私人收益理论，本文认为上市公司关联担保实际上是其控股股东掏空上市公司的行为。以2003和2004年两年的我国A股上市公司为样本，本

图3 上市公司提供关联担保公告的市场反应



²⁷ 对于在15个交易日内相继公布了两次或两次以上担保公告的公司，本文选取第一次公告日为事件日。

表8 关联担保公告后的市场反应

时间窗口	市场模型法		市场调整法	
	CAR	T值	CAR	T值
(-5,-5)	-0.0008	-1.25	-0.0005	-0.78
(-5,-4)	-0.0022**	-2.11	-0.0014	-1.43
(-5,-3)	-0.0028**	-2.00	-0.0020	-1.63
(-5,-2)	-0.0039**	-2.25	-0.0027*	-1.83
(-5,-1)	-0.0047**	-2.42	-0.0033**	-2.12
(-5,0)	-0.0065***	-3.00	-0.0048***	-2.69
(-5,1)	-0.0072***	-3.12	-0.0052***	-2.79
(-5,2)	-0.0066***	-2.69	-0.0043***	-2.17
(-5,3)	-0.0092***	-3.41	-0.0064***	-3.04
(-5,4)	-0.0104***	-3.53	-0.0072***	-3.39
(-5,5)	-0.0110***	-3.50	-0.0075***	-3.45
(-5,6)	-0.0133***	-4.01	-0.0097***	-4.21
(-5,7)	-0.0134***	-3.84	-0.0094***	-3.96
(-5,8)	-0.0122***	-3.22	-0.0082***	-3.30
(-5,9)	-0.0125***	-3.12	-0.0087***	-3.30
(-5,10)	-0.0118***	-2.84	-0.0077***	-2.78
(-5,11)	-0.0136***	-3.12	-0.0088***	-3.08
(-5,12)	-0.0138***	-2.99	-0.0084***	-2.83
(-5,13)	-0.0135***	-2.87	-0.0080**	-2.57
(-5,14)	-0.0139***	-2.94	-0.0085***	-2.69
(-5,15)	-0.0147***	-2.93	-0.0091***	-2.75

CAR：累计非正常报酬，分别用市场模型法和市场调整法计算；

*、**、*** 分别表示双尾t检验在10%、5%和1%上显著。

文通过实证研究发现，上市公司关联方担保发生额与其控股股东持股比例、公司资产质量显著负相关，与是否集团所属显著正相关。进一步检验表明，考虑公司融资环境的约束不影响变量间的上述关系；并且市场对关联担保公告做出了显著为负的反应。这些结果表明，那些控股股东持股比例较低、资产质量较差和受集团控制的上市公司倾向于提供更多的担保，从而更容易以提供关联担保的形式被控股股东掏空。

本文的贡献在于，对我国上市公司提供关联担保的原因以及提供关联担保公司的特征进行了解释，并且首次为控股股东以上市公司提供关联担保的方式掏空上市公司提供了系统的经验证据。本文的结论意味着，要想根本上解决上

市公司的担保问题，应从改善公司股权结构、约束大股东行为和加强投资者法律保护着手，而直接限制上市公司的担保行为可能收效甚微。

最后需要说明的是，本文的研究还存在一定的局限。首先，上市公司向关联方提供担保的同时，也可能接受关联方的担保。因而考察上市公司提供关联担保的净额可能更合适。但是不少公司并没有在年报中专门披露其接受担保的情况，²⁸因此本文没有考察提供担保的净额，这可能对本文的结论产生一定影响。其次，本文虽然考虑了前10大股东之间的关联关系对关联担保的影响，但由于数据的限制，本文没有进一步考察上市公司的最终控制人及其对上市公司的控制权和现金流量权分离对上市公司提供关联担保的影响。再次，我们只考察了上市公司的关联担保行为，而没有对其他担保方式进行研究。这些问题还需要以后进一步的深入研究。

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²⁸ 证监会对上市公司提供担保的信息披露做出了比较严格的规定，但并没有明确要求上市公司披露接受担保的情况。

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OWNERSHIP STRUCTURE, ASSET QUALITY, AND RELATED-PARTY LOAN GUARANTEES: EVIDENCE FROM CHINESE A-SHARE LISTED COMPANIES*

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ABSTRACT

The loan guarantees provided by listed companies for external firms have been a focus of concern by all parties involved in the Chinese securities market. Based on the theory of the private benefits of control, we think that related-party loan guarantees are a kind of tunnelling behaviour by controlling shareholders to further tunnel resources from listed firms, in addition to related-party transactions and embezzlement. Empirical evidence from 2003 and 2004 indicates that the possibility and magnitude of related-party loan guarantees are significantly and negatively related to the proportion of shares held by the controlling shareholders, positively related to whether the listed companies are controlled by corpora-

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tion groups, and significantly and negatively related to the asset quality of the listed companies. These relations still hold even after considering the constraints of the financing environment. The results also show that market returns are negative when a related-party loan guarantee is announced. To the best of our knowledge, this is the first study that systematically provides empirical evidence for the tunnelling behaviour of controlling shareholders via loan guarantees.

Keywords: Related-Party Loan Guarantee, Ownership Structure, Asset Quality, Tunnelling

I. INTRODUCTION

Since the “Lingguang” event of April 1999, loan guarantees provided by listed companies for external firms have been a focus of concern by all parties involved in the Chinese securities market. The magnitude of loan guarantees, such as those provided by Kmk Co., Ltd., PT Guangdong Kingman, Xinjiang Hops, Topu Group, and Delong Group, ranged from hundreds of millions to billions of renminbi. Not only were the malignant loan guarantees harmful to the listed companies’ operations and benefits, but they also led to their suffering losses, delisting, or even bankruptcy. In the end, both banks and massive numbers of investors suffered huge losses. To address this problem, the China Securities Regulatory Commission (CSRC) issued the “Notice Regarding Listed Companies Providing Loan Guarantees” in June 2000, and the “Notice Regarding Regulating Loan Guarantees of Listed Companies and Nostro Accounts between Listed Companies and Their Related Parties” in August 2003. The two regulations impose direct restrictions on the behaviour of loan guarantees.⁵ However, our statistical data⁶ show that in 2003 and 2004, the amounts of related-party loan guarantees were around 58.4 billion and 49.7 billion renminbi, respectively. In this regard, the problem remains serious, and the following questions arise. Why do so many listed companies continue to provide large loan guarantees after knowing they will lead to huge losses and that loan guarantees are clearly restricted by the CSRC? What kinds of listed companies

⁵ The notice released by the CSRC in June 2000 prescribes that listed companies may not use their own assets to provide loan guarantees for shareholders, the subsidiaries controlled by shareholders, the affiliated firms of shareholders, or individuals. The notice released in August 2003 further prescribes that listed companies may not provide loan guarantees for controlling shareholders and other related parties in which the proportion of shares held by the listed company is less than 50 per cent, and for any non-legal-person organisations or individuals. The amount of loan guarantees provided by a listed company may not exceed 50 per cent of consolidated equity in the latest accounting period. A listed company may not provide loan guarantees, directly or indirectly, for a company whose debt ratio exceeds 70 per cent.

⁶ The data of related-party loan guarantees in existing databases are collected from the amounts of loan guarantees announced by listed companies, and are not complete and detailed. Thus, we manually collect the data of the cumulative amounts of loan guarantees provided by each listed company from annual reports between 2002 and 2004.

provide more loan guarantees? In this paper, we try to explain these phenomena through both theoretical and empirical analyses.

Of the various kinds of loan guarantee behaviour, we find that large credit guarantees are the main form. According to the statistical data collected, related-party loan guarantees constituted 52.75 per cent, 65.38 per cent, and 71.81 per cent of total guarantees in 2002, 2003, and 2004, respectively. This is the major motivation leading us to focus on related-party loan guarantees in our research. In this paper, a related party refers to a party who controls or is controlled by a listed company directly or indirectly, including controlling shareholders⁷ or subsidiaries of the listed company. Since providing controlling shareholders with direct loan guarantees is prohibited by the CSRC and criticised by the public, listed companies use subtle or indirect forms of loan guarantees instead of direct ones. In this regard, companies controlled by listed firms become ideal research subjects. Therefore, we take the controlling shareholders or the subsidiaries of listed companies as a whole and restrict related-party loan guarantees within this domain.

As the Chinese stock markets are considered to be operating under a transitional economy, almost all listed companies are controlled by state-owned enterprises (SOEs), and their stocks are non-tradeable. The controlling shareholders have the incentive and the capacity to enjoy the private benefits of control through tunnelling because investor protection in China is weak. A good deal of literature (Tang and Jiang, 2002; Ye, 2003; Hu, 2004; Li *et al.*, 2004, 2005) also indicates that controlling shareholders reap the private benefits of control through tunnelling, including embezzlement, related-party transactions, and restructuring. As we know, a listed company will have to bear the liabilities when the debts guaranteed by such a company cannot be repaid on their due date. Owing to the high costs of debt collection, the controlling shareholder will simply let the listed company pay for the liabilities. Consequently, the controlling shareholder and its related parties may use the listed company to provide guarantees for their loans without any intention of repayment, while the listed company has to bear the debts.

When the controlling shareholders use the listed company to provide loan guarantees for its subsidiaries, they can still transfer these loans into their own hands by related-party transactions, embezzlement, or restructuring.⁸ When the subsidiaries' loans come due, the controlling shareholders have already transferred the loan money by the above methods while the subsidiaries or listed companies bear all the repayment and related liabilities.⁹ Even though such tunnelling channels are complex and costly, they are a feasible choice given the strict vigilance of the CSRC. Hence, according to the theory of the private benefits of control, we assert that loan

⁷ In this paper, we do not distinguish between the largest shareholder and the controlling shareholder; both are considered to be the largest shareholder.

⁸ In the following section, we discuss the capital transferring process under this situation in detail.

⁹ When a listed company holds 100 per cent or a high percentage of shares in its subsidiary, tunnelling against the subsidiary by the controlling shareholder is equivalent to tunnelling against the listed company.

guarantees are by nature a kind of tunnelling behaviour. Empirical evidence between 2003 and 2004 indicates that the possibility and magnitude of related-party loan guarantees are significantly and negatively related to the proportion of shares held by the largest shareholder, positively related to whether the listed firm is controlled by a corporation group, and significantly and negatively related to asset quality. These relations still hold even after considering the constraints of the financing environment. The results also show that market returns are negative when a related-party loan guarantee is announced. These results indicate that loan guarantees are a kind of tunnelling used by controlling shareholders to obtain benefits from listed companies. They also indicate that controlling shareholders are more likely to use the listed companies' intangible assets (reputation) to provide loan guarantees in order to engage in tunnelling when regular tunnelling methods, such as embezzlement, related-party sales, and restructuring, are not as effective because of low asset quality.

Our research has academic implications in that it provides theoretical explanations for why and how firms are inclined to provide related-party loan guarantees, and supports the hypotheses with empirical evidence. Ours is the first study to provide empirical evidence for controlling shareholders' use of related-party loan guarantees given by listed companies for tunnelling purposes. Our study also has policy implications to the effect that reforming ownership structure, regulating controlling shareholders, and promoting investor protection are more effective in solving problems arising from loan guarantees provided by listed companies than directly restricting them from offering the guarantees.

This paper is organised as follows. In Section II, we review previous literature. In Section III, we analyse loan guarantee behaviour from a theoretical perspective and propose the hypotheses. Section IV describes the research design, and Section V presents the empirical results. The paper concludes in the final section.

II. LITERATURE REVIEW

In Western developed markets, loan guarantees are a form of fair trading in the sense that the loan guarantor maximises its own profits through trading off benefits and risks. Previous research mainly consists of analytical studies on how to price loan guarantees. Merton (1977) first proves that a loan guarantee is equivalent to a European put option and develops the loan guarantee pricing model. Merton's model implies that common bond value is equal to the value of a default-free bond (with an implicit or explicit guarantee clause) minus the value of the loan guarantee (based on the default-free bond). Following Merton's model, Fischer, Keber, and Maringer (2001) propose a more complicated model that can be applied to loan guarantees with different duration structures, payment methods, and repurchasing clauses. In this regard, this model is closer to reality. Other scholars like Jones and Mason (1980) propose a risk-free-based loan guarantee pricing model that indicates that loan guarantee value is higher when bond risks, as measured by the variance of firm asset returns, are higher. Johnson and Stulz (1987) also provide a model to prove that loan guarantee value is a function of the default possibility of risky

securities. The implication is that in developed markets, loan guarantees are a kind of market-based transaction that is based on trading off risks and returns.

However, loan guarantee behaviour differs somewhat in the immature securities market in China. Many cases indicate that related-party loan guarantees within a group turn listed companies into “automated teller machines” for controlling shareholders. The main forms of behaviour include providing related parties with large amounts of free guaranteed loans, providing total guarantees representing a high percentage or more than 100 per cent of net assets, and providing loan guarantees for related parties with high financial risks within the group. Obviously, these kinds of behaviour completely differ from Western counterparts; hence, loan guarantees have generated concerns on the part of domestic scholars. Owing to limitations on data availability, there is relatively less empirical research in this field. Feng *et al.* (2005) describe and analyse the statistical features of the loan guarantee behaviour of Chinese listed companies and further analyse empirically the factors influencing such behaviour. They find that the loan guarantee behaviour of listed companies shows both preference and continuity, and that banks transfer their function of assessing and deciding on loan guarantee risks to the listed companies. However, they do not differentiate between related-party and non-related-party loan guarantees, and they put more emphasis on descriptive statistics and correlation testing. Based on 2002 data, Liu and Zheng (2005) document the relation between listed company loan guarantees and firm performance and capital structure. Through logistic regressions, they find that listed firms with inferior performance and high debt-asset ratios are more likely to provide loan guarantees. However, they do not test the magnitude of these guarantees using continuous parameters. One of the empirical studies mentioned above does not establish a theoretical framework in connection with related-party loan guarantees of listed companies for further investigation, while the other does not provide sufficient evidence. Hence, there is no adequate empirical research using a large sample size to study related-party loan guarantees of listed companies in China.

We can conclude from the literature review that the related-party loan guarantees of listed companies in China differ from those in Western economies, and that the loan guarantee theories developed from Western mature markets cannot validly explain loan guarantee behaviour in China. There is currently no adequate empirical study using a large sample to examine the related-party loan guarantees of listed companies. Further investigations in this field are needed. Considering the special institutional background in China in terms of an emerging transitional market, we posit that the theory of the private benefits of control will be helpful in explaining loan guarantees, and particularly related-party guarantees, in China. In the following section, we analyse this issue in detail.

III. THEORETICAL ANALYSES, INSTITUTIONAL BACKGROUND, AND RESEARCH HYPOTHESES

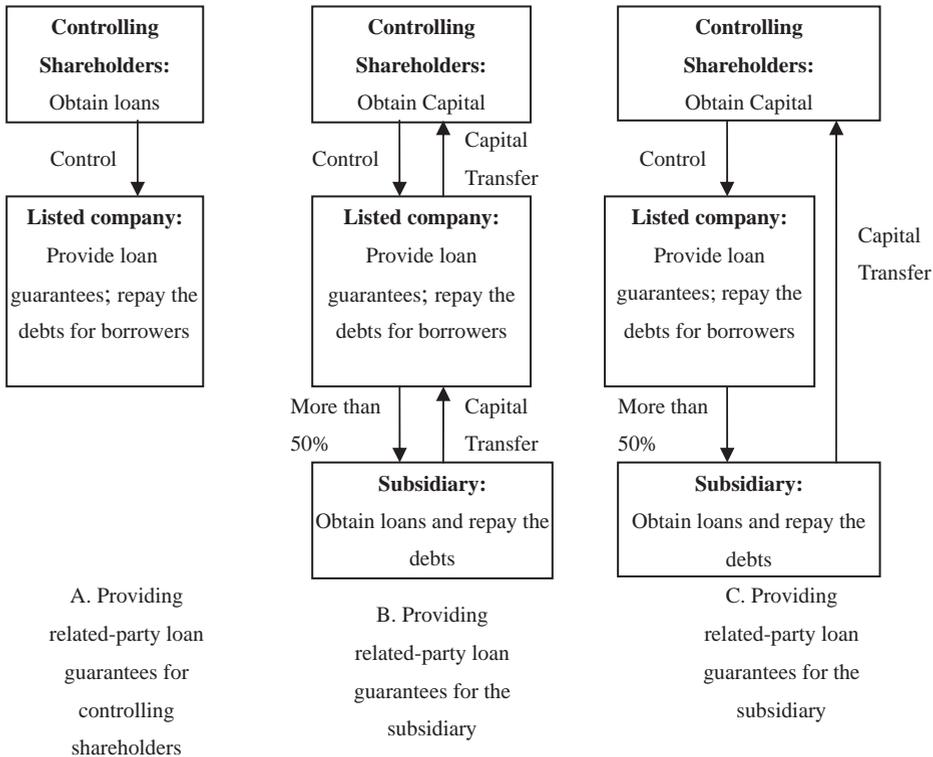
Grossman and Hart (1988) are the first to talk about the concept of controlling benefits, which refers to the benefits that controlling shareholders reap through

utilising their controlling rights. Shleifer and Vishny (1997) point out that controlling shareholders seek private benefits at the expense of other shareholders' interests when ownership is concentrated and investors are not well protected by law. Consequently, a severe agency problem between controlling shareholders and minority shareholders arises. Johnson *et al.* (2000) further define tunnelling as behaviour whereby controlling shareholders transfer the resources of listed companies from minority shareholders to their controlling firms. Claessens *et al.* (2002) find that in Asian pyramid firms, controlling shareholders have more incentive to tunnel at the expense of minority shareholder' interests when their controlling rights are larger than their cash flow rights. The basic feature in the Chinese securities market is that most listing firms are controlled by an SOE shareholder, and the shares of SOEs are not tradeable. In addition, weak investor protection leads to serious agency problems between controlling shareholders and minority shareholders. Tang and Jiang (2002), Ye (2003), and Hu (2004) show that controlling shareholders can obtain significant private benefits in Chinese listed companies. Li *et al.* (2004) find that controlling shareholders possess large sums of the funds of listed firms through tunnelling. Li, Yu, and Wang (2005) document that when listed companies are at no risk of being delisted, they seek to tunnel through mergers and acquisitions, which can destroy firm value. In this regard, the theory of the private benefits of control helps us understand many "special" issues arising from Chinese listed firms, though it is questionable whether we can use the theory to explain related-party loan guarantee behaviour in China.

As we know, loan guarantees are a contingent liability by nature. When debts are due and debtors do not or cannot repay them, the loan guarantor should compensate for the liabilities. The controlling shareholder can obtain a loan from a bank when the listed company provides a guarantee for the loan. However, the listed company often must pay for the debt because the controlling shareholder fails to fulfil its repayment liabilities when the debt is due. Consequently, the controlling shareholder is considered to be transferring a sum of funds equivalent to the loan amount from the listed company (see Figure 1A)¹⁰ and can use the loan guarantees for tunnelling. In fact, listed firms like Kmk Co., Ltd., Jifa Agricultural, PT Guangdong Kingman, Zhongfu Industrial, and Jiuzhou Group bore the compensation liabilities because of the large amounts of the loan guarantees they gave, and finally became "automated teller machines" for their controlling shareholders.¹¹ Since direct loan guarantees for controlling shareholders are restricted by the regulatory body, and since more cases of financial distress caused by loan guarantees are being reported, listed companies have adopted more subtle or indirect forms of

¹⁰ Theoretically, the guarantee fees paid to the guarantor should be deducted. But in fact, few listed companies charge fees for loan guarantees, especially under the effective control of the controlling shareholders.

¹¹ For example, the company Kmk Co., Ltd., provided loan guarantees of 430 million renminbi for its controlling shareholder, Kmk Group. In the end, Kmk Co., Ltd., bore the responsibility for compensation and suffered huge losses and delisting.

Figure 1 Controlling Shareholders' Tunnelling Behaviour via Related-Party Loan Guarantees Provided by Listed Companies

loan guarantee rather than direct ones. The number of cases of listed companies providing subsidiaries with loan guarantees is thus increasing. In particular, the number increased dramatically after the CSRC further prohibited listed companies from providing loan guarantees for controlling shareholders and related parties in which the listed companies hold less than 50 per cent of shares. According to the statistical data collected, related-party loan guarantees accounted for 45 per cent, 59 per cent, and 68 per cent of total guarantees in 2002, 2003, and 2004, respectively. Thus, tunnelling through loan guarantees is still effective as well as more subtle. We provide two concrete cases (see Figures 1B and 1C) to illustrate this. In the first case (Figure 1B), the listed company provides a loan guarantee for its subsidiary. After the subsidiary has received the loan, the listed company can transfer the loan money in the name of internal resource allocation since it has absolute control over the subsidiary. A review from *Shanghai Securities News* also comments that listed companies provide loan guarantees for their subsidiaries in order to take up loans for their own usage.¹² The controlling shareholders can further transfer the

¹² *Shanghai Securities News* (web version), 2 April 2005, by Lu Wang, cited from Sina news (<http://finance.sina.com.cn>).

loan to their accounts from the listed company, since they effectively control it. Based on data from 2000 to 2003, Li *et al.* (2004) find that the controlling shareholders have both the incentive and the capacity to come into possession of large amounts of funds by tunnelling. The regulation issued by the CSRC in August 2003 prohibits controlling shareholders from possessing the funds of listed firms, and it required all controlling shareholders to repay the funds they already possessed; thus, the magnitude of these funds decreased. However, the 2004 annual reports of listed companies indicate that the funds possessed by related parties amounted to as much as 134.8 billion renminbi.¹³ For the Shenzhen stock market alone, there were 74 listed companies in which the amount of capital possessed by controlling shareholders exceeded 100 million renminbi.¹⁴ It is thus obvious that controlling shareholders are able eventually to transfer subsidiaries' loans to themselves. For the second case (Figure 1C), controlling shareholders control listed companies that have absolute control rights over their subsidiaries; consequently, the shareholders can effectively control the subsidiaries. After the subsidiaries obtain loans from banks with guarantees provided by the listed companies, the controlling shareholders can directly transfer the loan money from the subsidiaries to themselves rather than from the listed companies by related-party transactions (Jian and Wong, 2004), embezzlement (Li *et al.*, 2004), and restructuring (Li *et al.*, 2005).¹⁵ Since generally neither the controlling shareholders nor the subsidiaries are listed companies, and the whole process can circumvent the listed firms and public disclosure, this type of tunnelling is rather more difficult for the public to detect. When loans are due, the controlling shareholders have already gained possession of the loan money through tunnelling resources via the above channels (including the cases shown in Figures 1B and 1C); meanwhile, the listed companies or subsidiaries have to bear the responsibility for the related compensation.¹⁶ Of course, the process of tunnelling through loan guarantees provided for subsidiaries is costly and more complicated than the direct tunnelling of resources from listed companies; however, it is still a feasible choice given the strict vigilance of the CSRC and the intense concern of the parties involved in the market. In fact, many cases reflect this situation. According to news reports, Zhongbao Qiu, who was the ultimate controller of three listed companies, including Fujian Sannong, ST Longchang, and Zhejiang Haina, used these companies to provide loan guarantees for their subsidiaries in order to obtain bank loans. At the same time, he tunnelled enormous resources from the listed companies or their subsidiaries through embezzling as much as 1.6 billion renminbi

¹³ *Guangzhou Daily*, 15 June 2005, quoted from news.dayoo.com.

¹⁴ From Stockstar, 29 November 2005 (<http://www.stockstar.com>).

¹⁵ Although the literature discusses the tunnelling behaviour of controlling shareholders, tunnelling can also be achieved between the controlling shareholders and the subsidiaries of listed companies since the former can effectively control the latter.

¹⁶ When a listed company holds 100 per cent or a high percentage of shares of the subsidiary, tunnelling against the subsidiary by the controlling shareholders is equivalent to tunnelling against the listed company.

in funds.¹⁷ In conclusion, controlling shareholders can achieve their tunnelling aims, whether the listed companies provide loan guarantees for them directly or for their subsidiaries. The question is, what factors influence controlling shareholders' tunnelling behaviour? In the following section, we develop hypotheses based on our analyses.

According to the classic agency theory, the incentive for tunnelling is influenced by the ownership percentage of the controlling shareholder. When the percentage is low, the controlling shareholder bears less of the value loss caused by tunnelling behaviour (ownership percentage times value loss), and hence has a higher incentive to tunnel; in contrast, the controlling shareholder has less incentive when its ownership percentage is high (namely, the alignment effect). From the point of view of tunnelling incentives, the magnitude of related-party loan guarantees decreases when the controlling ownership percentage increases. In other words, the amount of related-party loan guarantees is inversely related to the controlling shareholder's ownership percentage. However, a low ownership percentage is also related to a low capacity for tunnelling. Hence, the controlling shareholder's tunnelling behaviour depends on the reactions of other large shareholders. There are two possibilities. The first is that the largest shareholders can effectively tunnel only through holding a certain percentage of shares when other large shareholders are able to effectively curb the misconduct of controlling private benefits. In this scenario, when other large shareholders hold a relatively low percentage of shares, the higher ownership percentage held by the controlling shareholder leads to a larger capacity for tunnelling and a larger amount of related-party loan guarantees. However, the incentive to tunnel decreases to some extent as the ownership percentage increases, and the magnitude of tunnelling decreases. Therefore, in general, the relation between the amount of related-party loan guarantees and ownership percentage should assume an inverted U-shape. The second possibility is that if other large shareholders cannot effectively restrain the largest shareholders' tunnelling behaviour, or even collude with them to deprive minority shareholders' of their interests (Zhu and Wang, 2004; Xia and Fang, 2005),¹⁸ then the largest shareholders can tunnel resources even when they hold a relatively low ownership percentage. Considering the incentives for tunnelling altogether, generally the amount of related-party loan guarantees is inversely related to the ownership percentage.¹⁹ We thus develop the following hypotheses:

¹⁷ *Legal Daily*, 23 March 2008, quoted from the Xinhua internet (<http://news.xinhuanet.com>).

¹⁸ Zhu and Wang (2004) find that tunnelling is severe when the ownership percentages are more or less the same with one another among the largest shareholders. Xia and Fang (2005) also find a negative relation between firm value and the sum of ownership percentages of other large shareholders.

¹⁹ We appreciate the anonymous referees for pointing out the two possible situations where the proportion of shares held by the largest shareholder is lower.

H1(a): The relation between the amount of related-party loan guarantees and the controlling shareholders' ownership percentage will assume an inverted U-shape.

H1(b): The amount of related-party loan guarantees will be in a linear inverse relation to the controlling shareholders' ownership percentage.

The existing literature indicates that controlling shareholders tunnel resources through asset sales to themselves at low prices or to firms in which they have higher cash flow rights (Zhou *et al.*, 2003), through embezzlement (Li *et al.*, 2004), through restructuring (Li *et al.*, 2005), and through related-party transactions (Jian and Wong, 2004). On the one hand, if the asset quality of a listed company is good, the controlling shareholders can yield high returns through devoting effort to operations, while on the other they can use the above relatively direct methods for tunnelling if that is their intention. Therefore, the controlling shareholders may forbid the listed company from providing related-party loan guarantees. However, when the asset quality of a listed company is inferior, especially with low profitability, low cash flows, and fewer growth opportunities, the controlling shareholders cannot reap satisfactory returns, and the benefits derived from the above tunnelling channels are meagre. They may then make the listed company provide more related-party loan guarantees for tunnelling and yield the private benefits of control by using the listed company's reputation. Thus, the asset quality of a listed company will influence the amount of related-party loan guarantees.²⁰

H2: The poorer the quality of a listed company's assets, the larger will be the amount of related-party loan guarantees.

In addition, how the controlling shareholders control the listed company also influences related-party guarantees. Within a group, the controlling shareholders can separate controlling rights and cash flow rights through cross-holdings or a pyramid structure, thereby reducing the counteracting effects of the private benefits of control on the sharing benefits of control; thus, the incentives for tunnelling increase (Wolfenzon, 1999). More importantly, the connection between firms within a group is more complicated and subtle, often making it difficult for external investors to detect. The nature of related-party transactions is more easily hidden by these complicated and subtle connections. Related-party loan guarantees through

²⁰ If the creditors (banks) effectively played their roles of risk identification and prevention, they should refuse to provide loans when the asset quality of a listed company is poor. However, Feng *et al.* (2005) point out that banks treasure their clients and neglect risk concerns since there are so few listed firms. In addition, banks always put more emphasis on the magnitude of loans and less on returns owing to their being state-owned and their distorted incentives for lending, and thus they reduce their scrutiny of listed firms. Liu and Zheng (2005) also find that companies with poorer performance are more likely to provide loan guarantees. Hence, we do not consider the impact of banks on loan guarantees provided by listed companies. We are grateful for the comments from the anonymous referees.

complicated connections within a group can thus circumvent supervision, especially when the CSRC restricts listed companies from providing loan guarantees. Thus, listed companies controlled by group companies may provide more loan guarantees.

H3: Listed companies controlled by group companies will provide more loan guarantees.

IV. RESEARCH DESIGN

4.1 Sample Selection

We include all listed companies in the Chinese A-share market between 2003 and 2004 in our sample. After excluding the financial companies and companies with missing observations, we obtain 1896 observations in the final sample, including 973 observations for 2003 and 923 observations for 2004. We take all related-party loan guarantee data manually from the annual reports of listed companies published on the websites of the Shanghai and Shenzhen Stock Exchanges. We also compile the proportions of shares held by the largest shareholders and the relationship-adjusted ownership percentages according to the annual reports. The other corporate governance and financial data are sourced from the CSMAR database jointly developed by the China Accounting and Finance Research Centre of Hong Kong Polytechnic University and Shenzhen GTA Information Technology Co., Ltd.

4.2 Model and Variables

We use the model below to test the hypotheses described in the previous sections:

$$\begin{aligned} \Delta RPG_t = & \beta_0 + \beta_1 * LSHR_CEN_t + \beta_2 * LSHR_CENSQ_t + \beta_3 * GROUP_t + \\ & \beta_4 * ROA_{t-1} + \beta_5 * CFPS_{t-1} + \beta_6 * TOBINQ_{t-1} + \beta_7 * OSHR2-5_t + \\ & \beta_8 * RPG_BAL_{t-1} + \beta_9 * LEV_{t-1} + \beta_{10} * SIZE_{t-1} + \beta_{11} * YR + \\ & \sum_{i=1}^{20} \beta_{11+i} * IND_i + \delta \end{aligned} \quad (1)$$

The subscript t represents the current year and $t - 1$ represents the previous year. All variables are defined as follows.

4.2.1 Dependent Variable

ΔRPG is the change in related-party loan guarantees provided by the listed companies in the current year, scaled by total assets at the end of the fiscal year. To calculate the change in the amount of loan guarantees, we use the difference between the cumulative amount of related-party loan guarantees for the current year and that for the previous year, both of which we collect manually. Although the CSRC has issued a number of rules to regulate the provision of related-party loan guarantees, many listed companies do not make standardised disclosures on the

guarantees they provide. Through comparing corporate annual reports and announcements of related-party loan guarantees, we find that in existing databases, information on the amounts of these guarantees is neither complete nor detailed, or there are missing records, or the data do not meet the definitions in this study. We thus manually collect the data for these guarantees. We use the change in the amount of related-party loan guarantees provided in the current year as the dependent variable in Model (1), because we think that the controlling shareholders will choose to tunnel resources from companies with low asset quality. When the asset quality of a listed company deteriorates, it is easier for the controlling shareholders to use it to provide related-party loan guarantees; in other words, there should be a time sequence between lower asset quality and the behaviour of providing a related-party loan guarantee.²¹ If we use the cumulative amount of loan guarantees as the dependent variable, which reflects the amount of guarantees provided for outstanding loans cumulated from all previous years, it will be hard to determine the time at which each related-party loan guarantee is provided, and we cannot examine whether it is the lower asset quality that leads to a larger amount of such guarantees. In view of this, we use the change in the amount of related-party loan guarantees as the dependent variable in Model (1), and use the cumulated amount as the dependent variable in the robustness tests.²²

4.2.2 Testing Variables

LSHR_CEN and *LSHR_CENSQ* are the centralised proportion of shares held by the largest shareholder, which equals the proportion of shares held by the largest shareholder minus the sample mean, and the square of *LSHR_CEN*, respectively. Owing to the multicollinearity problem caused by including these two variables directly into the regressions, we centralise the proportion of shares held by the largest shareholder using the methods of Xia and Fang (2005). Now the variable we include in the regression is *LSHR_CEN*, which equals the proportion of shares held by the largest shareholder minus the sample mean. According to hypothesis H1(a), the predictions should be $\beta_1 < 0$ and $\beta_2 < 0$; according to hypothesis H1(b), the predictions should be $\beta_1 < 0$, and β_2 is not significant.

GROUP is a dummy variable, which equals 1 if the listed companies are controlled by corporate groups, and 0 otherwise. Using the methods employed by Li *et al.* (2004), we divide the sample into two groups, one consisting of listed companies controlled by corporate groups and the other not, according to the form of control by the largest shareholders. The companies not controlled by corporate groups are controlled by organisations that are not involved in specific business activities, such as the State-owned Assets Administration Bureau, state-owned asset management companies, government agencies, schools, and research institutions. The others are

²¹ This is why we use the data of the previous year for these asset quality variables in regression model (1) as well.

²² The results of this robustness test are presented in Table 6.

controlled by corporate groups. According to hypothesis H3, the prediction should be $\beta_3 > 0$.

ROA, *CFPS*, and *TOBINQ* are three variables that measure asset quality. *ROA* is the return on assets, equalling the total profits of companies scaled by total assets at the end of the fiscal year. *CFPS* is the cash flow per share, equalling net cash flow in the current year scaled by total equity at the end of the fiscal year. *TOBINQ* is the ratio of the market value of companies scaled by their book value, equalling the sum of the market values of circulating equity, block equity, and book value of liabilities scaled by the book value of total assets at the end of the fiscal year. If the company's asset quality is good, this means it has strong profitability, larger cash flows, and more growth opportunities in future. We thus use these three variables, *ROA*, *CFPS*, and *TOBINQ*, as proxies for asset quality measured from the aspects of profitability and the ability to generate cash flows and growth opportunities in future. According to hypothesis H2, we predict that all signs of the coefficients of the asset quality variables should be negative. We use the data for the previous year for these three variables to test whether the poorer quality of a listed company's assets leads to a larger amount of related-party loan guarantees in the current year.

4.2.3 Control Variables

OSHR2-5 is the sum of the ownership percentages of the second to fifth largest shareholders to control for the effect of other large shareholders on related-party loan guarantees. Since the other large shareholders may restrict the largest shareholder's behaviour or collude with it for tunnelling purposes, we do not predict the sign of the coefficient of *OSHR2-5*. *RPG_BAL* is the cumulative amount of related-party loan guarantees scaled by total assets. According to the findings of Feng *et al.* (2005), the related-party loan guarantees provided by listed companies are characterised by continuity; that is, the larger the cumulative amount of the guarantees the companies provided in previous years, the more likely they are to provide larger amounts in the current year. However, since the CSRC has imposed regulations on the ratio of the amount of related-party loan guarantees to total assets, the larger the cumulative amount of guarantees the companies provided in previous years, the more likely they are to reduce these guarantees in the current year. Therefore, we do not predict the sign of *RPG_BAL*. *LEV* is the leverage of the companies, equalling total debts scaled by total assets. Feng *et al.* (2005) find that a company's financial risks are positively related to the amount of related-party loan guarantees it provides. Liu and Zheng (2005) find that higher leverage leads to lower equity ownership by the shareholders and larger benefits for the largest shareholder through tunnelling (most of the losses caused by related-party loan guarantees are borne by the creditors). So we predict $\beta_9 > 0$. *SIZE* represents the firm size, equalling the natural logarithm of total assets. Large companies are more transparent in terms of information disclosure and have greater ability to provide loan guarantees, so we predict that the coefficient of *SIZE* will be positive. *YR* is a dummy variable for year, which equals 1 if the observation is for 2003, and 0

otherwise. *IND* is a dummy variable for industry to control for the industry effect. We divide the sample into 22 categories according to the CSRC's criteria (the manufacturing industry uses 2-digit codes while others use 1-digit codes), and the agricultural industry is set as the base. We exclude companies belonging to the financial industry, and we set 20 dummies.

Table 1 contains the descriptive statistics of the main variables of this study. To avoid the influence of outliers, we winsorise the observations lying below 1 per cent and above 99 per cent. According to Table 1, the average annual amounts of related-party loan guarantees reach 1.81 per cent of total assets, and 20 per cent at the

Table 1 Descriptive Statistics

Variable	N	Mean	Std Dev	Min	Median	Max
ΔRPG_t	1896	0.0181	0.0392	0.0000	0.0000	0.2050
$LSHR_t$	1896	0.4358	0.1712	0.0614	0.4266	0.8500
$LSHR_CEN_t$	1896	0.0000	0.1712	-0.3744	-0.0092	0.4142
$LSHR_CENSQ_t$	1896	0.0293	0.0288	0.0000	0.0213	0.1716
$OSHR2-5_t$	1896	0.1588	0.1312	0.0020	0.1302	0.5882
$GROUP_t$	1896	0.8718	0.3344	0.0000	1.0000	1.0000
ROA_{t-1}	1896	0.0319	0.0720	-0.3603	0.0390	0.1865
$CFPS_{t-1}$	1896	0.1040	0.6874	-1.6217	0.0155	3.1122
$TOBINQ_{t-1}$	1896	1.3909	0.3933	0.9772	1.2761	3.2148
RPG_BAL_{t-1}	1896	0.0109	0.0308	0.0000	0.0000	0.1878
LEV_{t-1}	1896	0.4536	0.1896	0.0743	0.4433	1.1070
$SIZE_{t-1}$	1896	21.0805	0.8893	19.0756	21.0204	23.5964

ΔRPG : the amount of related-party loan guarantees provided in the current year, scaled by total assets at the end of the fiscal year;

$LSHR$: the proportion of shares held by the largest shareholder;

$LSHR_CEN$: the centralised proportion of shares held by the largest shareholder, equalling the proportion of shares held by the largest shareholder minus the sample mean;

$LSHR_CENSQ$: the square of $LSHR_CEN$;

$OSHR2-5$: the sum of the proportions of shares held by the second to fifth largest shareholders;

$GROUP$: a dummy variable, equalling 1 if the listed companies are controlled by corporate groups, and 0 otherwise;

ROA : return on assets, equalling total profits of the companies divided by total assets at the end of the fiscal year;

$CFPS$: cash flow per share, equalling cash flows in the current year scaled by total equity at the end of the fiscal year;

$TOBINQ$: the ratio of market value to book value of the companies, equalling the sum of the market values of circulating equity, block equity, and the book value of liabilities, scaled by the book value of total assets at the end of the fiscal year;

RPG_BAL : the cumulative amount of related-party loan guarantees scaled by total assets;

LEV : leverage, equalling total debts divided by total assets;

$SIZE$: firm size, equalling the natural logarithm of total assets.

The subscript t expresses the current year and $t - 1$ the previous year.

highest. The average sum of the second to fifth largest shareholders' ownership percentages is 15.88 per cent, which is only one-third of the largest shareholder's ownership percentage. On average, the other large shareholders are unable to restrict the largest shareholder's behaviour.

V. EMPIRICAL RESULTS AND ANALYSES

5.1 Univariate Analyses

First, we divide the sample into seven sub-samples by the proportion of shares held by the largest shareholder; Table 2 presents the sample size and the average amount of related-party loan guarantees provided by each sub-sample. From this table we see that the amount of guarantees decreases apparently as the proportion of shares held by the largest shareholder increases. The proportion of these shares is linearly and negatively associated with the amount of related-party loan guarantees. Figure 2 shows this relationship, which is consistent with our hypothesis H1(b).

Table 2 Relationship between the Proportion of Shares Held by the Largest Shareholder and the Amount of Related-Party Loan Guarantees

<i>LSHR</i> (%) Intervals	N	Means of ΔRPG
(0, 20]	130	0.0360
(20, 30]	472	0.0241
(30, 40]	273	0.0177
(40, 50]	278	0.0153
(50, 60]	350	0.0134
(60, 70]	277	0.0126
(70, 100]	116	0.0082

LSHR: the proportion of shares held by the largest shareholder;

ΔRPG : the amount of related-party loan guarantees provided in the current year, scaled by total assets at the end of the fiscal year.

Figure 2 Relationship between the Proportion of Shares Held by the Largest Shareholders and the Amount of Related-Party Loan Guarantees

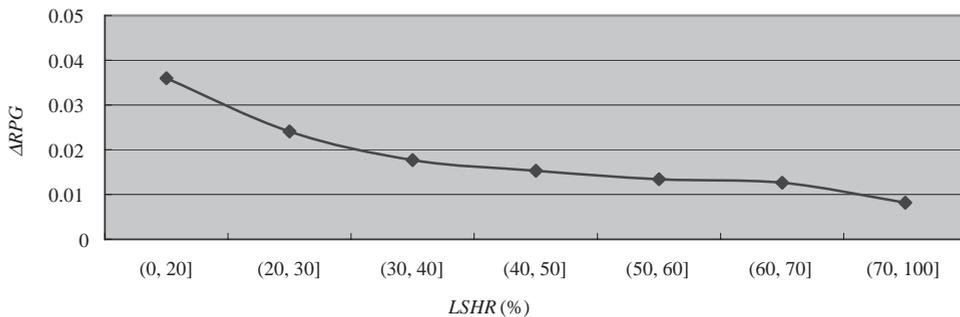


Table 3 Univariate Analyses

	Above Median Group (N = 948)	Below Median Group (N = 948)	Differences	T-Values
Panel A: Sub-samples divided by <i>ROA</i>				
Means of ΔRPG	0.0151	0.0211	-0.0060***	3.35
Panel B: Sub-samples divided by <i>TOBINQ</i>				
Means of ΔRPG	0.0155	0.0207	-0.0052***	2.91
Panel C: Sub-samples divided by <i>CFPS</i>				
Means of ΔRPG	0.0179	0.0182	-0.0003	0.16
Panel D: Sub-samples divided by <i>GROUP</i>				
	<i>GROUP</i> = 1 (N = 1653)	<i>GROUP</i> = 0 (N = 243)	Difference	T-Value
Means of ΔRPG	0.0219	0.0192	0.0027	0.60

ΔRPG : the amount of related-party loan guarantees provided in the current year, scaled by total assets at the end of the fiscal year;

GROUP: a dummy variable, equalling 1 if the listed companies are controlled by corporate groups, and 0 otherwise;

ROA: return on assets, equalling total profits of the companies divided by total assets at the end of the fiscal year;

CFPS: cash flow per share, equalling cash flows in the current year scaled by total equity at the end of the fiscal year;

TOBINQ: the ratio of market value to book value of the companies, equalling the sum of the market values of circulating equity, block equity, and the book value of liabilities, scaled by the book value of total assets at the end of the fiscal year;

*, **, and *** denote significance at the 10 per cent, 5 per cent, and 1 per cent levels in two-tailed T tests, respectively.

Afterwards, we divide the sample into two sub-samples using four criteria. The first three criteria are based on the median values of the three asset quality variables, while the last is based on whether or not the listed companies are controlled by corporate groups. We conduct univariate analyses between the sub-samples respectively. The results are presented in Table 3, which shows that the sub-samples with *ROA* and *TOBINQ* below the median values have provided more related-party loan guarantees than those with those variables above the median values; the differences are significant at the 1 per cent level (Panels A and B). Thus, the results are consistent with our predictions. But the differences between the two sub-samples divided based on the median of *CFPS* and on whether the listed companies are controlled by corporate groups are not significant (Panels C and D).

Finally, we provide the correlation matrix of the key variables in Table 4. From the Pearson correlation matrix, we find that the relationships between variables *LSHR_CEN*, *ROA*, *CFPS*, *RPG_BAL*, *LEV*, and *SIZE* and the amount of related-party loan guarantees are consistent with our predictions and are significant. From

Table 4 Correlation Matrix of the Variables

	$\Delta RP G_t$	$LSHR_CEN_t$	$LSHR_CENSQ_t$	$OSHR2-5_t$	$GROUP_t$	ROA_{t-1}	$CFPS_{t-1}$	$TOBINO_{t-1}$	RPG_BAL_{t-1}	LEV_{t-1}	$SIZE_{t-1}$
$\Delta RP G_t$											
$LSHR_CEN_t$	-0.1610***										
$LSHR_CENSQ_t$	0.0458***	0.1359***									
$OSHR2-5_t$	0.0675***	-0.6558***	-0.1317***								
$GROUP_t$	0.0041	0.0415*	0.0397*	0.0511**							
ROA_{t-1}	-0.1428***	0.0357	0.0163	-0.0043	0.0942***						
$CFPS_{t-1}$	-0.0511**	0.0054	0.0032	0.0032	0.0339	0.0870***					
$TOBINO_{t-1}$	-0.0182	-0.1762***	-0.0047	0.0823***	0.0135	-0.2249***	-0.0021				
RPG_BAL_{t-1}	0.2960***	-0.1673***	0.0410*	0.0388*	-0.0450*	-0.1934***	-0.0370	-0.0034			
LEV_{t-1}	0.1596***	-0.1581***	0.0253	0.0627***	-0.0458**	-0.2803***	-0.0022	0.0468***	0.2262***		
$SIZE_{t-1}$	0.0562***	0.2301***	0.1374***	-0.1866***	0.0483***	0.1658***	0.0012	-0.5459***	0.0310	0.0625***	
											0.2183***
											0.2131***
											0.0527***
											-0.2102***
											0.0459***
											0.1575***
											-0.0520***
											-0.1716***
											0.2118***
											0.1116***
											0.1434***

$\Delta RP G_t$: the amount of related-party loan guarantees provided in the current year, scaled by total assets at the end of the fiscal year; $LSHR_CEN_t$: the centralised proportion of shares held by the largest shareholder, equalling the proportion of shares held by the largest shareholder minus the sample mean; $LSHR_CENSQ_t$: the square of $LSHR_CEN_t$; $OSHR2-5_t$: the sum of the proportions of shares held by the second to fifth largest shareholders; $GROUP_t$: a dummy variable, equalling 1 if the listed companies are controlled by corporate groups, and 0 otherwise; ROA_{t-1} : return on assets, equalling total profits of the companies divided by total assets at the end of the fiscal year; $CFPS_{t-1}$: cash flow per share, equalling cash flows in the current year scaled by the total equity at the end of the fiscal year; $TOBINO_{t-1}$: the ratio of market value to book value of the companies, equalling the sum of the market values of circulating equity, block equity, and the book value of liabilities, scaled by the book value of total assets at the end of the fiscal year; RPG_BAL_{t-1} : the cumulative amount of related-party loan guarantees scaled by total assets; LEV_{t-1} : leverage, equalling total debts divided by total assets; $SIZE_{t-1}$: firm size, equalling the natural logarithm of total assets.

The subscript t expresses the current year and $t - 1$ expresses the previous year.

The left lower part of the diagonal presents the Pearson correlations and the right upper part the Spearman correlations; *, **, and *** denote significance at the 10 per cent, 5 per cent, and 1 per cent levels in two-tailed T tests, respectively.

the Spearman correlation matrix, we likewise find that the relationships between variables *LSHR_CEN*, *GROUP*, *ROA*, *TOBINQ*, *RPG_BAL*, *LEV*, and *SIZE* and the amount of related-party loan guarantees are also consistent with our predictions and significant. We also see from Table 4 that Model (1) has no severe multicollinearity problems.

5.2 Multivariate Regressions

Column (1) of Table 5 presents the results of the multivariate regressions based on Model (1). We see that the coefficient of *LSHR_CEN* is negative and significant at the 1 per cent level, but the coefficient of its square is not significant. This proves that the proportion of shares held by the largest shareholder has a linearly negative relationship with the amount of related-party loan guarantees; the lower the ownership percentage held by the largest shareholder, the larger is the amount of related-party loan guarantees provided by the listed company. The result is consistent with our hypothesis H1(b) but against H1(a), and indicates that even when the largest shareholder holds a lower proportion of shares, other large shareholders do not restrain the tunnelling behaviour of the largest shareholder, who can still make the listed company provide a large amount of related-party loan guarantees.²³ The coefficient of *GROUP* is significantly positive at the 10 per cent level, indicating that the listed companies controlled by corporate groups are more likely to provide more related-party loan guarantees, consistent with our hypothesis H3.

Among the variables for the asset quality of the listed companies, we find that the coefficient of *ROA* is negative and significant at the 1 per cent level. This shows that when a listed company has lower profitability, it will provide a larger amount of related-party loan guarantees. The coefficient of *TOBINQ* is negative and significant at the 10 per cent level, showing that when the company has fewer growth opportunities, it will also provide a larger amount of related-party loan guarantees. The negative coefficient of *CFPS* shows that companies with a lower cash flow per share provide larger amounts of related-party loan guarantees, but it is not significant. These results prove to some extent that a company with lower profitability, fewer growth opportunities, and less cash flow per share provides a larger amount of related-party loan guarantees and is more likely to become the object of tunnelling by the largest shareholders, consistent with our hypothesis H2.

The fact that the coefficient of the control variable *OSHR2-5* is small and not significant proves that after controlling for the other factors, the second to fifth largest shareholders have no impact on the largest shareholder's using the listed

²³ Of course, this may be because when the largest shareholder holds a low proportion of shares, it cannot completely control the listed company's decision to provide related-party loan guarantees, and thus seeks to collude with other large shareholders to tunnel resources from the listed company via related-party loan guarantees. We would like to thank the anonymous referees for their comments in this respect.

Table 5 Multivariate Regressions

Variables	Predicted Signs	OLS Regressions				Logistic Regression
		(1)	(2)	(3)	(4)	(5)
Intercept	?	-0.0401 (0.2363)	-0.0318 (0.4262)	-0.0409 (0.2263)	0.0093 (0.8893)	-4.5827** (0.0148)
<i>LSHR_CEN</i>	-	-0.0327*** (0.0002)	-0.0315*** (0.0009)	-0.0293*** (0.0010)	-0.0261* (0.0882)	-1.9087*** (<0.0001)
<i>LSHR_CENSQ</i>	-	0.0424 (0.2663)	0.0327 (0.4210)	0.0173 (0.6615)	0.0704 (0.3103)	0.4950 (0.8018)
<i>GROUP</i>	+	0.0041* (0.0910)	0.0037* (0.0729)	0.0043* (0.0935)	0.0114** (0.0433)	0.1824* (0.0781)
<i>ROA</i>	-	-0.0568*** (<0.0001)	-0.0749*** (<0.0001)	-0.0562*** (<0.0001)	-0.0235*** (0.0030)	-6.000 (0.1567)
<i>TOBINQ</i>	-	-0.0061* (0.0559)	-0.0062* (0.0664)	-0.0057* (0.0694)	0.0075 (0.2677)	-0.6592*** (0.0004)
<i>CFPS</i>	-	-0.0004 (0.7564)	0.0018 (0.4889)	-0.0005 (0.7358)	-0.0020 (0.5674)	-0.2118*** (0.0133)
<i>OSHR2-5</i>	?	-0.0007 (0.9525)	0.0019 (0.8769)	0.0011 (0.9262)	0.0099 (0.6177)	-0.8895 (0.1206)
<i>RPG_BAL</i>	?	-0.1658*** (<0.0001)	0.2121*** (<0.0001)	0.1668*** (<0.0001)	0.0236 (0.6128)	48.4215*** (<0.0001)
<i>LEV</i>	+	0.0134*** (0.0010)	0.0000 (0.9938)	0.0135*** (0.0009)	0.0118 (0.3476)	1.3945*** (<0.0001)
<i>SIZE</i>	+	0.0033** (0.0285)	0.0032* (0.0694)	0.0033** (0.0259)	0.0007 (0.8043)	0.2219*** (0.0072)
<i>YR</i>		Controlled	Controlled	Controlled	Controlled	Controlled
<i>IND</i>		Controlled	Controlled	Controlled	Controlled	Controlled
N		1896	1765	1896	683	1896
F/-2 LOG Likelihood Ratio		16.55***	13.78***	16.40***	2.40***	1977.14***
Adj-R ² /Max-Rescaled R ² (%)		20.28	18.34	20.12	5.97	31.84

The dependent variable in Columns (1)–(4) is ΔRP_G , equalling the amount of related-party loan guarantees offered in the current year, scaled by total assets at the end of the fiscal year; the dependent variable in Column (5) is ΔRP_{GD} , equalling 1 if the amount of related-party loan guarantees is larger than 0, and 0 otherwise; *LSHR_CEN*: the centralised proportion of shares held by the largest shareholder, equalling the proportion of shares held by the largest shareholder minus the sample mean; *LSHR_CENSQ*: the square of *LSHR_CEN*; *OSHR2-5*: the sum of the proportions of shares held by the second to fifth largest shareholders; *GROUP*: a dummy variable, equalling 1 if the listed companies are controlled by corporate groups, and 0 otherwise; *ROA*: return on assets, equalling total profits of the companies divided by total assets at the end of the fiscal year; *CFPS*: cash flow per share, equalling cash flows in the current year scaled by the total equity at the end of the fiscal year; *TOBINQ*: the ratio of market value to book value of the companies, equalling the sum of the market values of circulating equity, block equity, and the book value of liabilities, scaled by the book value of total assets at the end of the fiscal year; *RPG_BAL*: the cumulative amount of related-party loan guarantees scaled by total assets; *LEV*: leverage, equalling total debts divided by total assets; *SIZE*: firm size, equalling the natural logarithm of total assets; *YR*: the dummy for year, equalling 1 if observations are for 2003, and 0 otherwise; *IND*: the dummy for industry, 20 dummies altogether according to the industry digit code set by the CSRC.

For the regression in Column (1), the variables *ROA*, *CFPS*, *TOBINQ*, *RPG_BAL*, *LEV*, and *SIZE* use the data from the previous year; for the regression in Column (2), the variables *ROA*, *CFPS*, *TOBINQ*, *RPG_BAL*, *LEV*, and *SIZE* use the mean values from the previous two years; the regression in Column (3) combines the relationships between the ten largest shareholders; the regression in Column (4) excludes the observations without any related-party loan guarantees in the current year.

The numbers in parentheses in Columns (1)–(4) are the p-values of the t-tests for each estimated coefficient. The numbers in parentheses in Column (5) are the Wald Chi-Square test p-values for each estimated coefficient; *, **, and *** denote significance at the 10 per cent, 5 per cent, and 1 per cent levels in two-tailed tests, respectively.

company to provide related-party loan guarantees.²⁴ The coefficient of *RPG_BAL* is significantly positive, that is, a larger amount of related-party loan guarantees provided by the listed company in previous years leads to a larger amount of the same in the current year. This is consistent with the results of Feng *et al.* (2005), which indicate there is continuity in the related-party loan guarantees provided by listed companies. This result also shows that the regulations imposed on cumulative related-party loan guarantees by the CSRC are not efficient. Moreover, the coefficients of *LEV* and *SIZE* are positive and significant, indicating that the leverage and firm size of listed companies in the previous year are positively related to the amount of related-party loan guarantees provided in the current year. All these results are consistent with the findings of Feng *et al.* (2005) and Liu and Zheng (2005).

5.3 Robustness Tests

First, we consider the fluctuations of the variables during different periods. Using the data from the previous year only may not wholly reflect the true status of the listed companies. We use the mean values of *ROA*, *CFPS*, and *TOBINQ* for the previous two years as proxies for the relevant variables in Column (1) (correspondingly, *LEV* and *SIZE* use the mean values of the previous two years as well). Column (2) in Table 5 shows the regression results using these new proxies, which indicate that all previous conclusions remain the same except for the coefficient of *LEV*, which is not significant.

In addition, a relationship may exist between the largest shareholder and the next ten largest shareholders, and using only the data of the proportion of shares held by the largest shareholder may underestimate the actual control rights of the controlling shareholders. Therefore, we combine the ownership percentages of the related large shareholders according to the relationships disclosed in the annual reports. The regression results with this new proxy for ownership percentages do not substantially differ from Column 1 in Table 5 (see Column (3), Table 5).

We exclude companies that have not provided related-party loan guarantees in the current year, and the results are shown in Column (4), Table 5. The coefficients of *LSHR_CEN* and *GROUP* differ significantly from 0 with the predicted signs. Among the three variables measuring asset quality, *ROA* has a significantly negative coefficient, but the coefficients of the other variables are not significant. In general, this is still consistent with the hypotheses, but the explanatory power of the model declines. This may result from the reduced sample size.

²⁴ This is not consistent with the results in Table 4, where *OSHR2-5* and ΔRP G are positively related. This may be because the previous positive correlation between the two variables is due to other variables, and once these variables are controlled for in the regressions, the previous positive relationship vanishes; it may also be because the multicollinearity problem of independent variables covers up this positive relationship. Since this paper focuses on the controlling shareholders' behaviour, we do not carry out a deep analysis on this issue.

Furthermore, we use the dummy variable ΔRPD , which equals 1 if the related-party loan guarantee is bigger than 0, and 0 otherwise. We use this variable instead of the independent variable ΔRPD in Model (1), and run logistic regressions to examine the effects of ownership structure and asset quality on the probability of providing related-party loan guarantees. The results, presented in Column (5), Table 5, show that when the largest shareholder holds a lower proportion of shares, the company has fewer growth opportunities; also, if there is less cash flow per share, the company will be more likely to provide related-party loan guarantees. The listed companies controlled by corporate groups are also more likely to offer related-party loan guarantees. These results further support hypotheses H1(b), H2, and H3.

Lastly, because of the relatively stability of the ownership structure, size, and capital structure across different periods of time, we could see an equilibrium result when using the cumulative related-party loan guarantees as the dependent variable to run the regressions with the determinants. Hence, we use the cumulative related-party loan guarantees as the dependent variable to do the robustness test for Model (1).²⁵ Table 6 presents the results. The first column shows the regression results without controlling for the cumulative related-party loan guarantees in the previous year. Compared with Table 5, the coefficients of variables *ROA* and *TOBINQ*, which measure the asset quality of listed companies, remain negative but are not significant. The coefficient of variable *CFPS* is significantly negative, that is, listed companies lacking cash flow will provide larger amounts of related-party loan guarantees. This result indicates that in such companies where cash flow is insufficient and the controlling shareholders are unable to possess the capital directly, tunnelling via related-party loan guarantees is more likely to occur. The remaining results are consistent with Table 5. In Column (2), we control for the cumulative related-party loan guarantees of the previous year *LAG_RPD*. The advantage of doing this is that we can control for the omitted variables influencing these loan guarantees, and it is similar to using the change in the amount of related-party loan guarantees for the current year to run the regression, without assuming the coefficient of *LAG_RPD* to be 1. After controlling for the cumulative guarantees for the previous year, we find the coefficient of the variable *TOBINQ* to be significant at the 5 per cent level, and the sign is consistent with our prediction. Although the coefficients of other variables are smaller, the significant levels do not change. Meanwhile, the explanatory power increases. Generally speaking, the basic conclusions of this study do not change when the cumulative related-party loan guarantee is used as the dependent variable for the regressions.

5.4 Further Analyses

5.4.1 Considering the Constraints of the Financing Environment

The financing behaviour of a company is constrained by its financial environment. If the company is in a less developed market where financial systems remain laggard,

²⁵ We would like to thank Dr. Donghui Wu, Executive Editor, for his suggestions regarding this problem.

Table 6 Regression Results Using the Cumulative Amount of Related-Party Loan Guarantees as the Dependent Variable

	(1)		(2)	
	Coefficient	P-Value	Coefficient	P-Value
Intercept	-0.0644	0.1158	-0.0346	0.2602
<i>LSHR_CEN</i>	-0.0645***	<0.0001	-0.0290***	0.0003
<i>LSHR_CENSQ</i>	0.1117	0.1333	0.0596	0.1757
<i>GROUP</i>	0.0019*	0.0625	0.0019*	0.0521
<i>ROA</i>	-0.0119	0.4975	-0.0123	0.3488
<i>TOBINQ</i>	-0.0075	0.1345	-0.0085**	0.0217
<i>CFPS</i>	-0.0066***	0.0075	-0.0038**	0.0456
<i>OSHR2-5</i>	-0.0211	0.1138	0.0009	0.9266
<i>LEV</i>	0.0661***	<0.0001	0.0256***	<0.0001
<i>SIZE</i>	0.0048***	0.0072	0.0029**	0.0291
<i>LAG_RPG</i>			1.1227***	<0.0001
<i>YR</i>	Controlled		Controlled	
<i>IND</i>	Controlled		Controlled	
N	1895		1760	
F Value	11.54***		76.66***	
Adj-R ² (%)	14.31		57.14	

The dependent variable is *RPG_BAL*, equalling the cumulative amount of related-party loan guarantees scaled by total assets; *LAG_RPG* equals the value of *RPG* in the previous year.

Other variables are defined the same way as in Table 5;

The numbers in parentheses are the p-values for each estimated coefficient; *, **, and *** denote significance at the 10 per cent, 5 per cent, and 1 per cent levels in two-tailed tests, respectively.

it will find it harder to seek financing from external markets when it needs capital. Under these conditions, it will be less costly to allow listed companies to provide related-party loan guarantees in order to win external financing. Hence, underdeveloped markets may have more related-party loan guarantees. According to the Marketisation Index of China's Provinces Reports issued by the National Economic Research Institute, China Reform Foundation (Fan and Wang, 2001, 2003, 2004), huge variations are found in marketisation levels among different districts within the territory of China due to different natural resource endowments, geographical features, and policies. Xia and Fang (2005) and Sun, Liu, and Li (2005) find that marketisation levels play an important role, influencing the relationships between ownership structure and firm value, and the debt maturity structures of listed companies. We thus further control for the financial environment in Model (1) to avoid problems of omitted variables.

We adopt the marketisation index of the financial industry (represented by *FAC*) and the total marketisation index (represented by *MARKET*) as proxies for the

financial environment.²⁶ Lower values of *FAC* and *MARKET* represent a higher level of underdevelopment of the local financial market. We predict that these variables will be negatively related to the amount of related-party loan guarantees.

Table 7, which contains the regression results including the two variables *FAC* and *MARKET*, respectively, shows that even after considering the impact of the local financial environment, the signs and significance levels of the coefficients for the original variables remain unchanged from Table 5. However, the signs of the coefficients for the two variables *FAC* and *MARKET* go against our predictions, but are not significant. The results indicate that the development of the financial market does not have a significant impact on listed companies' behaviour of providing related-party loan guarantees, since the main results remain the same after controlling for such variables.

5.4.2 Market Reaction towards Related-party Loan Guarantees

According to the efficient market hypothesis, when a listed company announces its offer of a related-party loan guarantee, investors will have an immediate rational expectation, which will be reflected in the stock price via transactions. So what do investors think of the influence of related-party loan guarantees on firm value?

We take data from the listed companies' announcements of related-party loan guarantees in the Gildata database, from which we pick 880 events consistent with the definitions in previous sections to examine market reaction.²⁷ We use a market model and the market-adjusted method to calculate the cumulative abnormal return (*CAR*) around announcements of providing a related-party loan guarantee. We estimate the market model using data from (−95, −6) days before the announcements, and the event window is (−5, 15). From Table 8 and Figure 3 we see that *CARs* in the event window are always negative and significant (except in day −5). From 5 days before until 7 days after the announcements, *CAR* continues to go down to −1.3 per cent. Afterwards, it fluctuates and goes down to −1.47 per cent 15 days after the announcements. The results are similar when the market-adjusted method is used, and so we do not describe the details. All results indicate that investors think that listed companies will not get compensation from their related-party loan guarantees; this harms firm value and is unfavourable to the listed companies. Together with the empirical findings and analyses in the previous sections, we believe that the results prove that providing related-party loan guarantees marks the tunnelling behaviour of the large shareholders.

²⁶ Owing to data disclosure limitations, it is hard to ascertain the locations of the controlling shareholders and all related parties of the listed companies. For simplification, we assume that the controlling shareholders and the related parties are in the same provinces as the listed companies.

²⁷ For companies making two announcements of loan guarantees within 15 days, we select the day of the first announcement as the event day.

Table 7 Regression Results Considering the Constraints of Financial Environment

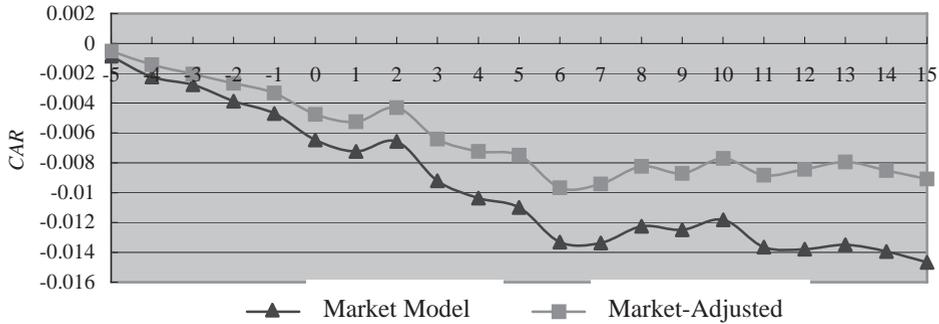
Variable	Predicted Signs	(1)	(2)
Intercept	?	-0.0512 (0.1431)	-0.0526 (0.1325)
<i>LSHR_CEN</i>	-	-0.0331*** (0.0002)	-0.0328*** (0.0003)
<i>LSHR_CENSQ</i>	-	0.0337 (0.3858)	0.0332 (0.3938)
<i>OSHR2-5</i>	?	-0.0006 (0.9569)	-0.0008 (0.9417)
<i>GROUP</i>	+	0.0039** (0.0512)	0.0039** (0.0496)
<i>ROA</i>	-	-0.0604*** (<0.0001)	-0.0603*** (<0.0001)
<i>TOBINQ</i>	-	-0.0057* (0.0774)	-0.0057* (0.0784)
<i>CFPS</i>	-	-0.0009 (0.5903)	-0.0009 (0.5873)
<i>RPG_BAL</i>	?	0.1578*** (<0.0001)	0.1583*** (<0.0001)
<i>LEV</i>	+	0.0132*** (0.0015)	0.0132*** (0.0015)
<i>SIZE</i>	+	0.0036** (0.0209)	0.0032* (0.0694)
<i>FAC</i>	-	0.0008 (0.1477)	
<i>MARKET</i>	-		0.0007 (0.3124)
<i>YR</i>		Controlled	Controlled
<i>IND</i>		Controlled	Controlled
N		1836	1836
F		15.77***	15.73***
Adj-R ² (%)		20.48	20.44

The dependent variable ΔRPG equals the amount of related-party loan guarantees provided in the current year, scaled by total assets at the end of the fiscal year; *FAC* and *MARKET* are the marketisation index of the financial industry for each province and the total marketisation index, respectively.

Other variables are defined the same way as in Table 5.

The variables *ROA*, *CFPS*, *TOBINQ*, *RPG_BAL*, *LEV*, and *SIZE* in Columns (1) and (2) use data for the previous year.

The numbers in parentheses are the p-values for each estimated coefficient; *, **, and *** denote significance at the 10 per cent, 5 per cent, and 1 per cent levels in two-tailed tests, respectively.

Figure 3 Market Reaction to a Listed Company's Announcement of Providing Related-Party Loan Guarantees**Table 8** Market Reaction to the Listed Company's Announcement of Providing Related-Party Loan Guarantees

Windows	Market Model Method		Market-Adjusted Method	
	CAR	T-Value	CAR	T-Value
(-5, -5)	-0.0008	-1.25	-0.0005	-0.78
(-5, -4)	-0.0022**	-2.11	-0.0014	-1.43
(-5, -3)	-0.0028**	-2.00	-0.0020	-1.63
(-5, -2)	-0.0039**	-2.25	-0.0027*	-1.83
(-5, -1)	-0.0047**	-2.42	-0.0033**	-2.12
(-5, 0)	-0.0065***	-3.00	-0.0048***	-2.69
(-5, 1)	-0.0072***	-3.12	-0.0052***	-2.79
(-5, 2)	-0.0066***	-2.69	-0.0043***	-2.17
(-5, 3)	-0.0092***	-3.41	-0.0064***	-3.04
(-5, 4)	-0.0104***	-3.53	-0.0072***	-3.39
(-5, 5)	-0.0110***	-3.50	-0.0075***	-3.45
(-5, 6)	-0.0133***	-4.01	-0.0097***	-4.21
(-5, 7)	-0.0134***	-3.84	-0.0094***	-3.96
(-5, 8)	-0.0122***	-3.22	-0.0082***	-3.30
(-5, 9)	-0.0125***	-3.12	-0.0087***	-3.30
(-5, 10)	-0.0118***	-2.84	-0.0077***	-2.78
(-5, 11)	-0.0136***	-3.12	-0.0088***	-3.08
(-5, 12)	-0.0138***	-2.99	-0.0084***	-2.83
(-5, 13)	-0.0135***	-2.87	-0.0080**	-2.57
(-5, 14)	-0.0139***	-2.94	-0.0085***	-2.69
(-5, 15)	-0.0147***	-2.93	-0.0091***	-2.75

CAR: Cumulative abnormal returns, calculated using the market model and market-adjusted methods, respectively;

*, **, and *** denote significance at the 10 per cent, 5 per cent, and 1 per cent levels in two-tailed t tests, respectively.

VI. CONCLUSIONS AND LIMITATIONS

The loan guarantees provided by listed companies for external firms have been a focal issue in the Chinese securities market. However, empirical studies on this issue are far from being well developed, and little of the existing literature examines the theoretical causes. Based on the theory of the private benefits of control, we think that loan guarantees are in fact a kind of tunnelling behaviour on the part of the controlling shareholders against a listed firm. Using a sample of listed companies in the Chinese A-share market from 2003 to 2004, this study finds empirically that the amount of related-party loan guarantees provided by the listed companies is significantly and negatively related to the ownership percentage of the controlling shareholders and asset quality, and significantly and positively related to whether the listed companies are controlled by corporate groups. Further examination finds that the above relationships do not change after considering the financing environment constraints of the company, and that the market has a significantly negative reaction towards the announcement of providing related-party loan guarantees. These results indicate that listed companies that have lower ownership percentages of control over shareholdings and lower asset quality, and that are under the control of corporate groups, are more inclined to provide more related-party loan guarantees, thus making it easier for the controlling shareholders to tunnel resources via related-party loan guarantees.

This paper makes the contributions of providing explanations for the causes of related-party loan guarantees provided by listed companies and showing the characteristics of these companies. It first provides systematic empirical evidence that controlling shareholders tunnel resources from listed companies via related-party loan guarantees. Its conclusions predicate that the way to root out the problem of related-party loan guarantees provided by a listed company is to improve the firm's ownership structure, to restrict the largest shareholder's behaviour, and to reinforce laws protecting investors. Directly imposing constraints on a listed company regarding the offer of related-party loan guarantees may have only a little effect.

The study still has some limitations. First, listed companies may also accept guarantees from related-parties at the same time they provide related-party loan guarantees. As a result, it may be more appropriate to examine the net amount of related-party loan guarantees. But because many companies do not disclose their acceptance of guarantees in their annual reports,²⁸ this study does not examine the net amount of these guarantees; this may have influenced the conclusions. Second, although this study considers the impact of associations among the ten largest shareholders on related-party loan guarantees, it does not further examine the roles of the ultimate controllers and the separation between control rights and cash flow rights on this issue owing to limitations of the data. And third, we only examine the related-party loan guarantee behaviour of listed companies, while other forms

²⁸ Although the CSRC issued strict regulations on the disclosure of loan guarantees provided by listed companies, it did not require the acceptance of loan guarantees to be disclosed.

of loan guarantees remain unexamined. All these could be themes for further research.

REFERENCES

Please refer to pp. 85–86.